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STREPTOTHRICOSIS (ACTINOMYCOSIS) OF THE LUNGS *

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LOS ANGELES

In 1908 I reported[1] seven cases of what I believed to be pulmonary actinomycosis (streptothricosis) discovered in one year. Since then several additional cases have been encountered. They have all been infested by a streptothrix which I have supposed to be the *Streptothrix actinomyces*. Some of these patients have also had tuberculosis, death resulting in each case; some have had simple streptothricosis; several of these have recovered.

Of the former series three patients had also pulmonary tuberculosis and all were free from infection in other parts of the body. In one case (No. 2, N., of the mixed disease) the patient, who had a marked lesion of the left lung, had died April, 1908, after a year's struggle and eight months after coming under observation.

In another mixed case (No. 3, G.) the patient survived till March, 1909. In this case there was little involvement of the lungs, the apices only being invaded, especially the right. The larynx was profoundly involved, with much swelling, swallowing being difficult and painful, and aphonia being absolute for many months before death.

CASE 1.—The patient, A., was reported probably cured, had remained so to a recent date, the recovery apparently being permanent. This was the most marked and characteristic case of the series, almost the whole of the left lung being more or less diseased, the patient having expectorated large quantities of bloody malodorous muco-pus for many weeks, often a pint or more in twenty-four hours, and recovering with a mass of consolidated tissue in the left upper third, with reduced vesicular murmur and bronchial breathing over the whole lung.

CASE 4.—The patient absconded and has not been rediscovered.

CASE 5.—The patient had mixed disease, went east and his fate is unknown.

CASE 6.—M., the patient, seemed to pass into recovery with a rather marked consolidation in the bottom of the left lung posteriorly, and a lesser one in the right apex. Marked fibrosis occurred, especially in the left side, which greatly reduced the motion of the chest-walls—in fact, nearly abolished it; the breathing was mostly abdominal, and even moderate exertion caused extreme dyspnea. Yet the man looked well and, barring the short-windedness, felt so. A few actinomycetes were found in his expectoration after the first report, but none for several months before his death—indeed, for many weeks there had been no expectoration of pus. The man went to Colorado in 1909, was seized with some complication and died in two or three days.

CASE 7.—W., the patient, had a marked lesion in the lower left chest posteriorly, with free expectoration of thick bloody sputum (his case having been early taken for one of some extraordinary pneumonia—as indeed it was), completely recovered, with evidence of moderate thickening of tissue (so-called consolidation) in the region involved. His health is apparently perfect.

CASE 8.—Of the second series of cases, the first was a mixed one, the patient (B.) being a bachelor, aged 25, a lawyer. He came under observation late in July, 1908, and had then been sick for fifteen months. At first his expectoration was bloody; for a year it had not been over a half ounce in twenty-four hours, and blood-free. The lesion was a diffused and moderate one throughout the left lung. It gradually grew worse, with more and more signs of consolidation; dulness, reduced motion, bronchial breathing, râles, reduced vesicular murmur, especially at the bottom of the lower lobe, and finally a cavity. He failed and died in April, 1910. Both tubercle bacilli and actinomycetes were found in the expectoration and were distinct and typical.

CASE 9.—R., the patient, is a vigorous-looking bachelor, a street-car conductor of 28 years. He was first seen in December, 1908. He felt poorly and coughed for several months. Expectoration had been moderate in amount and occasionally bloody. A few actinomycetes were found but no tubercle bacilli. There was almost an entire absence of physical signs, barely slight bronchial breathing in the right apex. The germs have increased in the sputa. There has been little or no fever, and he keeps his weight and general condition; the daily expectoration is about three ounces, and it is occasionally bloody, and fetid. Early in 1910 his nose apex swelled, got red and finally broke down in ulceration of the skin in numerous small points. The streptothrix was found in the discharges from the ulcers. The condition recovered under tincture of iodin locally and iodin internally. Later a similar ulceration occurred on one of his legs above the ankle and healed.

CASE 10.—H., the patient, of Wyoming, came under observation March 22, 1909. He is a sheep raiser, 52 years of age, married. The previous autumn he had what was pronounced left pneumonia and was in bed four or five days. He was expectorating 8 ounces of pinkish muco-pus every twenty-four hours; had no fever, but was very short-winded; he had lost 15 pounds in weight. The expectoration teemed with actinomycetes. He had manifestly extensive effusion in the left pleural cavity which was aspirated March 25 of the amount of 20 ounces of pinkish sero-pus containing what appeared to be débris of actinomycetes. March 31, the left side remaining still flat, a drainage-tube was inserted which promptly discharged 30 ounces of fluid. There was no lesion of the right lung, so the expectoration manifestly came from the upper part of the left lung and may in part have come through a perforation from the pleural cavity, since after the drainage the expectoration was reduced markedly. The patient soon returned home and his doctor reported for a time a moderate improvement. He returned to Los Angeles in the winter of 1909-10. Actinomycetes in fragments were still found in the discharges. An operation for removal of sections of ribs was done after his return home in the spring of 1910.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Tr. Sect. Hyg. San. Sc., A. M. A., 1908, p. 242.

CASE 11.—C., the patient, was in the practice of my associate, Dr. George L. Cole, with a record as follows: He had come under observation December 3, 1908. He was a lumberman, 62 years of age, had been well since 1870 until eight or ten months before; then a cough began and there was pain in the left chest. He was put to bed by his previous physician during January and February, 1908, having been aspirated four times up to April of that year. About one quart of fluid was procured each time.

His pulse was weak and cough bad (Dec. 3, 1908), although expectoration was trifling. Dr. Cole found complete dulness over the left chest, the heart being pushed to the right; the apex-beat was distinctly to the right of the sternum. The patient was aspirated of between 3 and 4 quarts of bloody fluid; but the little expectoration that was procured contained actinomycetes. Jan. 29, 1909, the left side was still profoundly dull throughout. There was tactile fremitus down to the fifth rib, also voice sounds. The heart apex was under the sternum. This was substantially the condition April 23, 1909. There was no real vesicular murmur even at the apex. There was no fever; pulse and respiration were rapid. The weight had decreased 24 pounds. Yet, the patient was about, attending to business daily and looked like a man only slightly under normal vigor. He grew gradually worse and died Nov. 4, 1909. The left lung was found compressed into the size of a large human fist. The right lung had become extensively invaded, at the apex, by what the microscope showed to be carcinoma.

CASE 12.—C., the patient, is a single woman aged 40, who has had tuberculosis and has been coughing more or less for a number of years. She has also had a great deal of nervous debility. Her previous physicians found tubercle bacilli on several occasions.

On my examination made in 1908 her right lung had slightly reduced motion, marked reduction in vesicular murmur, trifling dulness and sharp bronchial breathing at the top, reduced fremitus over the middle and lower portions, trifling bronchial breathing at the top of the left lung. The patient was not expectorating much and it was impossible to procure a good sputum specimen. Her temperature was 1 degree above normal. Hers was regarded as an arrested case of tuberculosis.

After an absence of a year she returned for another examination. She had recently been having fever—to 102 F.—with wheezing, cough and poor appetite. There was now marked consolidation of the lower part of the right lung posteriorly and about the same condition as before in the upper portion. No tubercle bacilli were present in the sputum, but numerous actinomycetes.

The patient had not lost much in weight and her general functions were fairly normal. She had been in very fair health the previous year, except for some irregularities in menstruation. She soon ceased to have fever. The thickening at the base of the right lung disappeared and general improvement was noticeable. Occasionally she had a recurrence of slight fever, with numerous râles throughout the right lung. It was evident that the infection was in the right apex. The actinomycetes mostly disappeared after a few months, and her general health was greatly improved, when she suddenly developed a rather marked case of exophthalmic goiter. This improved after a few months. She is now in fair health, but recently a few actinomycetes were found.

CASE 13.—C., a man of 40, widower, an office man from Philadelphia, came under observation May, 1909. His general health was good; his appearance was that of a well man; his general functions as to digestion and general vigor were normal. He had no fever and probably had had none. He had been hoarse more or less for six months and had had a cough with a small amount of expectoration of a thin purulent character, with occasional streaks of blood. The hoarseness was worse in the mornings, better evenings. There had been no difficulty or pain in swallowing. He was only slightly short-winded.

His eastern physicians had repeatedly searched his expectoration for tubercle bacilli and had failed to find any, and one of them had searched for the germs supposed to belong to syphilis, with negative results. He had received free doses of potassium iodid from the last-mentioned physician, who regarded the case as syphilitic (although the patient denied the possibility of it) and reported improvement for a time under the treatment. The patient confirmed this last statement.

Physical examination of the chest (May, 1909) revealed absence of dulness and râles; the slightest possible reduction of vesicular murmur over the upper left chest, and a sort of loud bronchial breathing over both apices, of a character suggesting tracheal narrowing. The larynx was extensively diseased; all the tissues were swollen; the epiglottis was swollen, ulcerous, and cleft rather deeply in its center longitudinally; the vocal cords were swollen and red, and the false cords and arytenoid regions were large and red but apparently not ulcerous. It was impossible to get a good view of the vocal cords and the lining of the trachea. There were two white ulcerous patches on the front of the left half of the soft palate. The sputum contained a few streptococci and many actinomycetes of a typical appearance but no tubercle bacilli.

The patient was advised to have his throat sprayed with an 8 grain water solution of sulphate of copper, and to take ⅓ grain of the copper drug and 6 grains of sajodin, three times a day. He soon disappeared and was not seen again. He died in February, 1910.

CASE 14.—T., a married woman, aged 50, was first seen in February, 1909. She had a laparotomy some months previously for gall-bladder symptoms, followed by some amelioration. She had all the physical signs of a moderate infiltration of what appeared to be tuberculosis of the right apex anteriorly. She had slight fever, moderate expectoration and general debility. No tubercle bacilli were found after repeated examinations, and no actinomycetes until June 10, when a single granule was discovered. Afterward, numerous typical ones were found, some of them in clumps. Later, bloody expectoration in small quantity appeared for a short time with extension of dulness and reduced vesicular murmur in the back of the right apex down to the upper part of the central third of the lung. Fever increased with this extension of the disease. The fever subsided simultaneously with the discharge of larger masses of the peculiar germs. This cycle was repeated several times during the year; extension of the disease and fever, the latter subsiding on the discharge of a large mass of bloody pus with terrible odor. The patient died in 1910. The post-mortem findings are reported below. This case occurred in the house of one of the cured patients reported above.

CASE 15.—D., a widow, 65 years of age, had had a moderate cough for a year or more, with a little daily yellow expectoration. In 1908 I found slight physical signs of thickening in the right lung apex. The general health was good for a person of her age. She was a large woman and had lost little weight; she had been substantially without fever. Early in October, 1909, she had had a slight pulmonary hemorrhage and continued to expectorate blood-flecked and odorless sputa for several weeks. No other symptoms occurred. Repeated examinations of her sputa failed to find either tubercle bacilli or actinomycetes, until after this hemorrhage. Then the ray specimens were found in small numbers, but no tubercle bacilli. Early in December, 1909, she was seized with a flooding pulmonary hemorrhage and died in a few minutes. No necropsy was made.

CASE 16.—F., an unmarried man aged 26, a clerk in a chemical and apparatus supply house in Los Angeles for some years, had had cough for several months with a little odorless expectoration, and has lost a few pounds in weight. He has felt a sense of general debility, but has kept at work. There has been less than 1 degree elevation of temperature in the afternoons. Slight dulness, an occasional râle and moderate bronchial breathing have been found at the right apex. Characteristic actinomycetes were found but no tubercle bacilli.

CASE 17.—The patient, Br., in the practice of Dr. Robert Moody of the University of California, at Berkeley, was a single woman, a teacher, 40 years old, with extreme lateral curvature of the spine. Her father had had asthma fifteen years and died of heart disease; one brother died of tuberculosis. The patient had pleurisy in 1903, and the next year, tuberculosis of the right lung. Dr. Moody first saw her in January, 1908. There was a cavity in the right lung; tubercle bacilli and actinomycetes were found in the sputum. Tuberculin was given (1/500 to 1/1000 mg. weekly) till May, 1910, when the tubercle germs disappeared. Streptothrix germs have persisted and the patient was still living a few weeks ago.

The treatment of these cases has been tonic and regulation of functions with iodin in some form and frequently sulphate of copper. The latter was given in doses of ⅓ gr. three times a day when the stomach could bear it, and the iodin in the form of iodid of potassium, or of sodium, and sajodin.

The cases here reported emphasize the fact that pulmonary streptothricosis is not so very uncommon; that most physicians can discover examples if they will only look for them, and that it must be true that a large proportion of the cases of so-called non-tuberculous phthisis are instances of pulmonary streptothricosis of some variety. The number of cases of this sort is considerable and most general practitioners have encountered them and have been puzzled by them.

This whole series proves that it is futile to try to connect the cases with the disease in cattle or in other people. Patient 1 was a farmer, but denied ever having seen a case of lumpy jaw. Patient 3 was a lawyer who took milk from a dairy found to contain some cows afflicted with tuberculosis and fewer cows afflicted with lumpy jaw. The other cases were free of any suggestion as to such an origin of the disease. Case 14 is the only one that appears to have been connected with any other case.

The patients mostly came from widely separated parts of the country and had no connection with each other. Nor was a single case of the lung affection secondary to a lesion elsewhere in the body, and in no instance has the disease appeared secondarily in other organs than the lungs and pleura, save Case 9, in which the skin became involved and recovered.

Dr. Edith Claypole, who has done most of the laboratory work on the specimens, has by means of various devices made a large number of cultures from several cases, and with notable results that are set forth in her notes accompanying this paper. By Gram-stain and otherwise she has been able to demonstrate in the sputum the mycelial threads and rod-segments many days before they appear in masses large enough to give the peculiar radiating appearance so characteristic of the *Streptothrix actinomyces*—indeed, in the early stage she feels able to predict that the larger masses will be found later. This is, I think, a discovery of distinct value. She suggests that any specimen of sputum containing faint blue-staining bacilli in notable numbers, which persistently refuse to grow in ordinary media and are Gram-positive, should be critically searched for the streptothrix with almost a certainty of finding it.

The appearance of the germs, both to the naked eye and magnified, has tallied with the classic description of *Streptothrix actinomyces*, except that there have been no true "clubs," and it has been substantially the same in all the patients. Several authors who have discussed this phase of the subject, notably McFarland, regard the clubbing as merely incidental and unessential in the growth of the germs. This is the correct view, and the clubs are most unusual in the human pulmonary infection,[2] for the reason that being probably a sort of by-product and depending on the character of the host-tissue, the lungs do not favor their growth. Neither do they grow in any of our culture media. The essential elements are the mycelial threads and their fragmentations, rods and granules, and they tend to gather in masses with certain characteristics that have given the name "actinomyces" to some of them.

The presence in most of the cases of bloody expectoration at some period of the disease, and especially the frequent bad odor, indicate true *Streptothrix actinomyces*. But, of course, some other variety of streptothrix might possibly produce all the phenomena noted in these cases, and they may represent more than one variety. That the germs are an incident and not an etiologic factor in the cases described is quite impossible. The causative relation to the disease is as certain for these germs (whatever their classification) as is that of tubercle bacilli for pulmonary tuberculosis. There may, indeed, be a close biologic relation between the streptothrix and the tubercle germs, but if such is the case it does not appear to be so clinically.

Dr. Claypole has written the following note and discussion on the specimens, and on the pathology of the disease:

In the majority of cases the sputum is characteristic and of two types: (1) glairy, mucilaginous, often quite watery; (2) purulent, more or less bloody, more or less—sometimes intensely—fetid. Both types may be found sparingly or in abundance. The second type may only have a characteristic, homogenous, pinkish color, or be deeply blood-stained; it generally has a distinctly bad odor. This odor may belong in some degree to both kinds of sputum, but especially to the purulent form. Of eight cases, not complicated with tuberculosis, three were in Class 1 and five in Class 2.

The small granules, usually the size of a very small pinhead, can be picked out with a needle and put on a slide for examination. They are quite tough and can be washed free of debris by putting them into a small dish of water and squirting them vigorously up and down a pipette. Careful examination of many specimens before and after this treatment shows them to be absolutely unhurt by it; only the pus and epithelial cells clinging to the outside are removed.

Under a low magnification (Reichert objective 1 and ocular 1) the yellow color is marked; to the naked eye the fungus is greyish white. The edge is always darker, even shading into brown; toward the center it grows lighter. From this light, almost homogeneous center, the characteristic radiations arise. Higher magnification (Reichert objective 7 and ocular 1) shows the center to be a mass of pale, radiating threads, the mycelium, and at the edges a mass of threads and cocci. Both mycelium and cocci may be stained with methyl blue, the former frequently being banded light and dark in segments, sometimes granular throughout.

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2. The following writers are on record as holding that the clubs are non-essential:

Bevan, A. D.: Ann. Surg., 1905, xli, 641.
Hitchins, P. S.: Brit. Med. Jour., 1905, ii, 1168.
Hodenpyl: Med. Rec., 1890, xxxviii, 653.
Levy and Klemperer: Elements of Clinical Bacteriology, 1900, p. 356.
Litton and Levy: Deutsch. med. Wchnschr., 1906, xxxii, 1772.
Lord, F. T.: THE JOURNAL A. M. A., Oct. 8, 1910, p. 1261.
Ruhrah, J.: Ann. Surg., 1899, xxx, No. 4, p. 417; No. 5, p. 605; No. 6, p. 722.
Stokes, W. R.: Am. Jour. Med. Sc., 1904, cxxviii, 861.
Werthen and Olney: Am. Jour. Med. Sc., 1904, cxxviii, 637.
Wood and Eshner: Med. Rec., 1910, lxxvii, 947.
Wynn, W. H.: Brit. Med. Jour., 1908, i, 554.

The following assert that neither granules nor clubs are essential:

Ashton and Norris: THE JOURNAL A. M. A., Sept. 9, 1905, p. 784.
Beracz, R. von: Ann. Surg., 1903, xxxvii, 336.
Cagleri, G. E.: THE JOURNAL A. M. A., Nov. 12, 1898, p. 1173.
Chiari: Ztschr. f. Heilk., 1900, ii.
Hamm: Deutsch. med. Wchnschr., 1906, xxxii, 941.
Letten and Levy: Ztschr. f. Heilk., 1900, ii.
Musser and Gwyn: Tr. Assn. Am. Physicians, 1901, xvi, 208.
Scheele and Petrusky: Deutsch. med. Wchnschr., 1897, xxiii.
Wagner, C.: Surg., Gynec. and Obst., 1910, x, 148.

Culturally, the actinomycetes do not grow usually on plain agar, glycerin and glucose agar, or potato (they do not seem to be more active on one than on the other of these media); if they are present, there are small whitish masses on the surface, which on removal give the characteristic appearance under the microscope. In bouillon the germs grow better.

In Case 14, T., long bacilli are recorded as found in the sputum at first and later the characteristic granules of streptothrix. In all probability these bacilli, so-called, are fragmented mycelium; ultimately the fungus appeared in masses of tangled mycelia rather than in granules, but always some material of this sort was found. In about eight months a cavity appeared at the apex and the lung involvement became more extensive, especially posteriorly.

When death occurred, the emaciation was extreme. The left lung and pericardium were normal; the right was contracted and anteriorly over the third and fourth rib cartilages, the parietal and visceral pleuræ were densely adherent and the bone involvement marked, explaining the neuralgia and substernal pains complained of. When the adhesions were separated the lower part of the pleural cavity was found to contain 8 ounces of most fetid pus. For a few days before death the patient had coughed up quantities of this fetid fluid, at times almost suffocating in it, showing a bronchial communication with the cavity.

The upper lobe of the lung was mottled black and white, was almost solid in consistence, no porous structure remaining; it contained several small cavities from the size of a pea to that of a walnut. The middle lobe was dark red, spongy, with whitish spots, and anteriorly a white, honey-combed area that was adherent to the sternum for a space of some 3 inches. This was evidently the most recent involvement.

The lower lobe was contracted, reddish and somewhat porous. The diaphragmatic pleural surface was much thickened and resembled a pyogenic membrane. The same mycelial masses were found in this fetid pus as had been observed in the sputum. When the lung was cut into, the same granules and mycelial masses were found in the larger bronchial tubes, together with the debris of pus and epithelial cells. There was no evidence of any lymphatic involvement in any of the bronchial or other glands.

The microscopic examination of the tissues demonstrated the growth of the fungus from the earliest stage to the mycelial masses. Sections were made from the consolidated apex, the middle lobe near the adherent portion, the intercostal tissue, the reddish lung near the base and a piece of the thickened inferior pleural surface of the lower lobe. Some sections were stained with hematoxylin and eosin, and others by the Gram-Weigert method.

As shown in the hematoxylin-eosin mounts, the upper lobe consisted of a large amount of fibrous material, much new granulomatous tissues but no alveoli. The bronchial tubes of varying sizes remained more or less full of sputum, and scattered among the granulomatous tissues were giant cells, not like those accompanying tuberculosis, but small, with only from four to eight nuclei. Never was there any sign of caseation; everything was dense and compact. In the other lobes there was some vesicular structure, but the alveoli were full of desquamated epithelial and pus cells.

Throughout the lung patches of new-formed granulomatous tissue, with its accompanying small giant cells, were of frequent occurrence, showing tissue response to some form of irritation. In places a fine fibrillar structure was plainly seen, often apparently in circular spaces, suggesting blood-vessels. This was of especial interest, as will be seen from the revelations made by the application of the Gram-Weigert method to the same set of sections.

In a recent series of lectures by Foulerton in the London *Lancet* the whole subject of streptothricosis is most ably discussed, and the complex morphology clearly demonstrated. The reproduction from the mycelium of rod-segments, very similar in appearance and morphologically equivalent to bacilli, as well as by spores, is an especially illuminating phase of the problem and one which gives an entirely new point of view from which to investigate all the tissues in this disease. The Gram stain shows these small particles in the newly infected areas, when other methods fail to do so.

In this case the point of most recent invasion is the area of the middle lobe adherent to the chest wall. This is the point at which the study logically begins. The tissue is more nearly normal than elsewhere, some exudation into the alveoli and some granulomatous cells are present. In one of the largest bronchioles full of pus cells and other elements of sputum, the most beautiful picture of the method of invasion is found. Rod-segments, staining blackish with Gram stain, literally swarm in one place among the pus cells. High columnar epithelial cells surround this mass of sputum. At one point their integrity is broken, and in among the cells are masses of these black rod-segments en route to the deeper tissues. Again, they are found in the intercellular connective tissue and even to the fibrous tissue surrounding the small blood-vessels. This is of especial interest in view of the fact that in older areas of infection these open spaces with walls apparently like those of vessels are found filled with mycelial threads staining the characteristic blue. The good condition, relatively speaking, of all the tissues entirely negatives the idea that this is a process of discharge into the bronchiole, rather than an invasion of it. Of course, it is a condition of self-infection but it shows how the disease extends, and also accounts for the rather slow manner of extension, that of contiguity, not by infection through the blood-stream.

The development of these rod-segments into the typical mycelial masses is the next point for demonstration. The earliest stage of the growth of the mycelium from the rod-segment could not be determined, the reason for this being indicated in the cultural experiments described later. In the sections of the reddish porous part of the middle lobe, rod-segments are also found in the interalveolar tissue, also small granules of the fungus. There are many granulomatous patches and in them are found areas of interlaced fibrils staining more or less deeply with Gram stain, also masses of fibrillar substance likewise staining blue. Small fragments of mycelium can be found in the exudate in the larger bronchioles over this area also. There occur in the larger bronchial tubes some sections of the tufts of the fungus; these stain deep blue and are very distinct and characteristic. Small scattered fragments of mycelium are found in many parts of the sections.

In the upper lobe no air-spaces remain, fibrous and granulomatous tissue alone are found with some blood-vessels and a few bronchial tubes; in these can be seen fragments of mycelium. The response to the extreme irritation of the parasite is the formation of new tissue, and the air-cells are destroyed. Apparently, the excessive new formation of tissue is unfavorable to the fungoid growth; it disappears. The parasite departs but the function of the lung is destroyed. Further invasion of new, softer tissues presumably occurs with similar results. This total lung destruction probably accounts for the marked short-windedness of most of the patients afflicted with this disease, indicated in physical signs by the so-called extreme fibrosis.

At what point the mycelium begins to form rod-segments is at present undetermined. They may form only when conditions become unfavorable for growth in any special region, or they may be formed in small numbers at all times. The former would be the more probable, however, in view of the larger number found at the place of invasion in the most recently infected point.

It is possible that the masses of mycelium, usually found in the sputum, are not capable of entering new tissues, in fact cannot cause infection; that is, that they must become rod-segments before really being dangerous to the system.

The peculiar manner in which the rod-segments surround the small blood-vessels is worthy of further study. Finding the interlaced mycelial threads apparently in blood-vessels was at first very puzzling, and only after the earlier stage of the process[3] was discovered did it seem possible that the fungus really was in the vessels.

SUMMARY

1. A large amount of granulomatous tissue takes the place of all air-sacs and small bronchioles in the final stage.

2. Marked absence of caseation and very little breaking down save in a pleural cavity.

The in many ways unexpected results obtained from the study of the tissues in this one case of primary streptothricosis of the lung make it most desirable that more should be critically examined to determine if the course of the pathologic changes is always the same or if noteworthy variation occurs.

CULTURAL AND SPUTUM EXPERIMENTS

To investigate more fully the character of the infectious agent responsible for the disease in these cases, a series of cultural experiments were made from Cases 9 and 17.

The contaminations unavoidable in sputum and the very poor growth of the organism on solid media made it impossible to obtain pure cultures without a much longer series of experiments than time allowed. The ordinary streak and plate methods are not suitable, since the secondary forms, growing freely, cover the surface before the streptothrix is started. Consequently bouillon was chosen and contaminating forms, chiefly staphylococci, disregarded. The small granules found in the sputum, consisting of tufts of mycelium, were carefully picked out either with a needle or pipette, washed thoroughly in repeated changes of sterile water and then either crushed or dropped whole into the tubes which were incubated at 37.5 C. and examined daily in hanging drops and smears, the latter stained with methylen-blue by the Gram method.

In the hanging drop the growth of the organism is beautifully shown; in the earliest stage (twelve hours) it apparently consists of a few spores, and from them two or three delicate threads of mycelium; both stained and hanging drop mounts show this clearly. During the second, third and fourth days the small organism grows rapidly, becoming quite a mass of threads, radiating with more or less regularity from the center of growth. By the sixth day small but distinct granules can be seen in the bouillon; these are large enough to pick up and crush on slides to make smears. On agar the growth is but feeble, never in isolated masses, owing to the presence of more rapidly growing organisms, and not recognizable to the naked eye as separate masses. In hanging drops and smears it shows fragmented mycelium and rod-segments in abundance. The little tufts in the bouillon are tangled mycelium beset with many coccus-like spores, strongly Gram-positive.

In the early stages, up to the fourth day, the mycelium proved itself to be very resistant to stains of all kinds, only a few threads becoming colored even after prolonged treatment and none if merely the usual time was allowed. Parallel observations on the hanging drops showed the fungus to be present in abundance. Finally, by the time the small tufts became visible to the naked eye, on the fourth day, the usual staining properties began to appear and by the sixth day successful operations resulted from the standard method. At no time, however, was the organism acid-fast.

The application of the Gram stain to this organism discloses many points in the structure not shown by the ordinary stains. There is a great variation in the diameter of the different threads and as marked a difference in their staining qualities. Some are fine and hair-like, others coarse and thick. Many of the heavy ones stain a deep continuous blue, others are finely granular throughout, some segmented at regular intervals, like long strings of large bacilli, again like strings of streptococci, or in separate organisms, like bacilli; the rod-segments among those that take the Gram stain in whole or part are many that show only the counter stain and even that faintly; some are large, some small; the very young and the old degenerate threads. After becoming familiar with the organism it is easy to trace the same irregularity in staining in the tissues, though here the fragmentation is not a marked phase, save where the formation of rod-segments has occurred. The resistance to stain of the young mycelium also serves to explain the notable absence in the tissues of very young forms growing from the rod-segments. It is a well-known fact that microorganisms in tissues are more difficult to stain than in pus, sputum or cultures. It may be the difficulty in hardening the tissues rapidly enough to fix the organisms. In the case under consideration it would seem to be some qualities in the organisms themselves. Only as they grow old they lose the power and again fail to color typically. The exact conditions under which the rod-segments form are as yet not determined. It is evident that by no means does all mycelium fragment into them. Much of it dies, as evidenced by fine granulation and final lack of stain.

SUMMARY

1. The fungus is found to be markedly pleomorphic, occurring in (a) the classical grain or tuft, in culture and tissue, (b) fragmentations, bacillary, or even smaller, like granules, in tissues and discharges and some culture (solid) media. Very variable in size of mycelium.

2. The very young mycelium is resistant to all stains; the old threads likewise fail to stain.

3. In cultures and tufts the mycelial masses always show large numbers of small Gram-positive organisms (spores). Fine branching mycelium in the very early stage starts from these structures (demonstrated in hanging drops and smears). They are negative to Moeller's method for staining spores of ordinary fission fungi. They were not demonstrated in the tissues.

4. The active infectious agent in tissues is apparently the rod-segment.

To extend the study somewhat further a series of preparations was made from the sputum of many patients, tuberculous and others, as well as from Cases 9 and 17. This was to determine whether the Gram-picture was diagnostic of the disease and whether it appeared in sputum in the absence of microscopic tufts. No tuberculous sputum showed the same results. In Cases 9 and 17 particles of sputum chosen, carefully avoiding any macroscopic piece of the fungus, invariably gave rod-segments and fragmented mycelium. At one

3. Pollack, Lohlein and Chiari report organisms in blood-vessels of lung and other tissues.

time when the pus appearance of the sputum was negative in Case 9 the rod-segments and mycelium showed abundantly by Gram stain.

Culture in bouillon always gave positive results in the absence of fungus in the sputum visible to the naked eye. By these two methods moreover, the Gram stain and bouillon culture, a case that was under observation for diagnosis was suspected and proved to be positive to culture. In a few days with severe coughing and profuse expectoration the macroscopic granules appeared, clinching the diagnosis.

If continued observations show these two methods to be absolutely trustworthy it will be possible to make an early and reliable diagnosis for this disease. The simplicity of a bouillon culture and hanging drop examination, together with some Gram-stained films, brings it within the reach of all who are near any sort of laboratory facilities.

Auditorium Building.

RICKETS IN ITS EARLY STAGES AND BEST TREATMENT TO PREVENT DEFORMITIES *

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This subject has not been given much special attention recently, judging from a review of modern medical literature on diseases of children, and especially rickets, but all seemed to have been content with the fact that the disease was due to mal-assimilation with inevitable and unavoidable results and let it go at that.

Rickets is a disease of defective nutrition from mal-assimilation, augmented by the absence of sunshine and fresh air. Some authorities believe rickets due to toxins received by the child through special inheritage, while others contend the toxins are due to alimentation; however, let that be as it may, the disease is essentially a constitutional one and we must treat it as such.

The scrutinizing diagnostician will readily see that the disease is much more common than is generally supposed and will differentiate it by elimination from other diseases in children called something else. There are negatively etiologic factors which must be considered, among which are air, sunshine, hygienic environments, food and age. Like all diseases associated with impaired nutrition, it is less likely to occur among breast-fed children than among those who are deprived of their natural food. For the same reason it is more likely to occur in the latter part of the first year than in the early months, since in so many cases the breast-milk deteriorates in quality after the first six months of lactation and after one year still more so. On the other hand, premature weaning, or bottle-feeding, causes chronic indigestion, characterized by excessive acidity throughout the entire alimentary canal which overcharges the blood with acids and disturbs the ossification of the bones.

The disease exists most frequently in the temperate zone and in crowded unhygienic quarters of cities and especially large ones.

In addition to constitutional rachitic disturbances, the bone changes demand early attention, and marked changes are first noticed in the epiphyseals of the long bones most frequently at about the age of 6 months when the organic bone material exceeds the inorganic, and excessive ossification interferes with the growth of the child resulting in permanent hyperostosis.

The age limit is usually between 6 months and 3 years, and the early symptoms are many, among which, before the marked osseous change occurs, are constipation or diarrhea, gastro-intestinal disorders, night sweats, debility, inactivity, often fever, delayed dentition and rapid dental decay, but not typical Hutchinson teeth, nervousness and often convulsions, enlarged abdomen, large head, enlarged and tender epiphyses. All these symptoms may not be present, however, but there will be enough to enable one to make an easy and timely diagnosis, and as the disease is not necessarily a fatal one, it should be recognized sufficiently early to lessen the ravages and shorten the time of the disease so that no bone deformities may occur, and if they do, whether in the early deformity stage or not, there is no justifiable excuse for not preventing the deformity and correcting what exists.

The general treatment in the early stage should be constitutional in its fullest meaning, augmented by dietetic and hygienic measures, prevention of deformities, manipulation, mechanical and operative measures. Medicines are of minor importance compared to food, sunlight and fresh air; however, iron, arsenic, phosphorus, lactophosphate of lime and cod-liver oil may be given with advantage; but since the disease is self-limited, the object should be to tide the child over this period as quickly and safely as possible, remembering that during the softening stage of the bones faulty positions, muscular action, weight-bearing and atmospheric pressure are the main factors to observe in order to prevent deformities; and we should remember Wolf's law of development and equilibrium, that where there is any deviation from the normal perpendicular axis of the body, no matter in what part of the body the deviation or deformity exists, there will be a compensatory one and the entire body must pay the debt, and if this unnatural position be maintained long, the result will be permanent abnormal growth and deformity as in the case of torticollis, in which the bones of the head become flattened transversely, face distorted, eyes deficient and brain undeveloped; few such individuals live to be over 25 without becoming imbeciles.

The same principle is involved in the spine of the rachitic but to a much more serious degree, because nine out of ten such spinal curvatures are upper right dorsal, making convexity on right and concavity on left, causing the ribs to interfere with the normal functions of the organs of the thoracic cavity, especially the heart, which may result in organic lesions and a shortened life. One might thus specialize indefinitely, but generally speaking, rachitis affects the entire organism and produces marked changes in all bony and cartilaginous tissues by means of cell proliferation, and the atrophy is not due to halisteresis, but to the action of the osteoblasts and perforating canals, producing a deficiency of lime in the bones.

Hence, the proper preventive treatment during the stage of the softening of the bones should be to avoid weight-bearing on spine, arms or legs, and child kept on its back; for if it walks or sits, deformities are sure to occur; so the prone and supine recumbent positions

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

must be maintained until constitutional and hygienic measures have conquered the disease.

It often occurs that cases are not seen by the physician until the disease has advanced far enough to present one or all of the inevitable deformities; but prompt action by an orthopedic surgeon should overcome such by means of gymnastics, manipulation, mechanical appliances, osteoclasis, osteotomy, tenotomy, myotomy, or tendon, nerve or muscle transplantation.

INTESTINAL PARASITES FOUND IN INDIVIDUALS RESIDING IN THE NORTHWEST

FREQUENT PRESENCE OF PROTOZOA IN PATIENTS WHO HAVE NEVER BEEN IN SOUTHERN COUNTRIES

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The feces of 145 patients were examined in this laboratory during the past four and one-half months. Thirty-five of these examinations were made relative to the function of the pancreas, or as controls; the remaining 110 in patients suffering with chronic diarrheas, anemias, or unexplainable abdominal conditions. In sixty-five of these 110 patients one or more of the following intestinal parasites were found; viz., *Amœba, Trichomonas intestinalis, Cercomonas intestinalis, Balantidium coli, Strongyloides intestinalis, Lamblia intestinalis, Ascaris lumbricoides or Trichocephalus dispar.* Thirty-four of the sixty-five patients, in whom these intestinal parasites were found, had never been south of the state of Iowa. Of this latter group, eleven were infected with *Entamœba tetragena* and one with *Entamœba histolytica.*

These findings are so contrary to the generally existing belief that such organisms are rarely seen in persons who have never lived in, nor visited, southern countries, that they have been considered sufficiently important to be brought to the attention of the medical profession. The series, though not a long one, seems sufficient to prove that the prevailing idea, regarding the geographical distribution of such organisms, is incorrect.

The following table shows the results of the findings:

Total number examined	145
Patients examined relative to pancreatic function or as controls, in whom no parasites were found	35
Patients examined suffering with chronic diarrhea, the passage of blood or mucus, anemia or obscure abdominal symptoms	110
Of these 110 patients, intestinal parasites were found in	65
Of these 110 patients, no intestinal parasites were found in	45
Patients showing parasites who had never been in the South or tropics	34
Patients showing parasites who had been in the South or tropics for a short time	7
Patients showing parasites who had lived in the South or tropics	15
Patients showing parasites of whom we have no clear history as to habitat (early cases with incomplete data)	9
Patients showing parasites who are known to have had diarrhea	42
Patients showing parasites who were examined on account of obscure abdominal symptoms, anemias or the passage of blood or mucus	9
Patients showing parasites who presented no symptoms of their presence	3
Patients showing parasites who presented no symptoms other than an abscess of the liver	1
Patients showing parasites who presented no symptoms other than anemia	1
Patients showing parasites in whom we had no history in regard to the above symptoms (early cases with incomplete data)	9

The following table shows the number of times each of the different parasites were seen and the number of time the various combinations of parasites were seen, i. e., in patients in whom more than one species was found.

Patients showing:

	No.
Entamœba tetragena	16
Entamœba coli	11
Entamœba histolytica	9
Small ameba and unclassified ameba	12
Trichomonas intestinalis	32
Cercomonas intestinalis	9
Lamblia intestinalis	4
Strongyloides intestinalis	1
Balantidium coli	1
Ascaris lumbricoides	1
Trichocephalus dispar	1

Patients showing the following combinations of parasites:

	No.
E. histolytica and *E. tetragena*	1
E. histolytica and *Lamblia intestinalis*	1
E. histolytica and *Cercomonas intestinalis*	1
E. histolytica and *Strongyloides intestinalis*	1
E. tetragena and small ameba	1
E. tetragena and *Trichomonas intestinalis*	6
E. tetragena, E. coli, and *Trichomonas intestinalis*	2
E. tetragena, Cercomonas intestinalis and Trichomonas intestinalis	1
E. tetragena, E. coli, Cercomonas intestinalis and Trichomonas intestinalis	1
E. tetragena, Trichomonas intestinalis, Lamblia intestinalis and Ascaris lumbricoides	1
E. coli and *Trichomonas intestinalis*	3
E. coli, small ameba, *Trichomonas intestinalis* and *Cercomonas intestinalis*	1
Trichomonas intestinalis and *Cercomonas intestinalis*	2
Trichomonas intestinalis and *Lamblia intestinalis*	1

The following table shows the number of times each species was found in the patients who had never been in the south or tropics:

	No.
E. coli	6
E. histolytica	1
E. tetragena	11
Trichomonas intestinalis	17
Balantidium coli	1
Lamblia intestinalis	3
Ascaris lumbricoides	1
Unclassified amebas	9
Cercomonas intestinalis	3

It will be seen that *Trichomonas intestinalis* was found more frequently than any other parasite—thirty-two times. *Entamœba tetragena,* a pathogenic ameba, recently separated from *E. histolytica* and *E. coli,* and which has been well described by Charles F. Craig,[1] was found in sixteen patients. Eleven of these are known never to have been in the South, a fact showing that this parasite—a pathogenic ameba—is frequently found in persons who have always lived in the middle Northwest.

A patient who had never been out of the state of Minnesota, and who had suffered with chronic diarrhea for eight or ten years, was found to be infected with four parasites; viz., *Entamœba tetragena, Lamblia intestinalis, Trichomonas intestinalis and Ascaris lumbricoides.* In another patient who had suffered for six months with diarrhea and who was out of Canada for the first time, *Entamœba tetragena and Trichomonas intestinalis* were found. The patient in whom *Balantidium coli* was found had suffered for twelve years with chronic diarrhea and showed a blood-picture of pernicious anemia. He had always lived in Minnesota and had never been in the South.

Eight of the nine patients showing *Entamœba histolytica* gave histories of having been in the South or tropics. The ninth patient had never before been out of the state of South Dakota. In twelve patients, amebas were found which I was unable to classify. Nearly all of these were seen at a date prior to the publication of Craig's paper, mentioned above—a communication which was of much value as an aid in differentiating the several species of amebas.

With two exceptions—*Ascaris lumbricoides* and *Trichocephalus dispar*—all of the parasites found belonged

1. Craig, C. F.: Arch. Int. Med., March 15, 1911, vii, No. 3.

to the protozoa branch; this series of cases thus tending to show that in persons who have always lived in the middle Northwest, protozoa are more frequently found than other intestinal parasites.

While this work was being done, the pus from the mouths of twelve patients suffering with mild and well-marked cases of purulent gingivitis was examined. In six of these, *Entamœba buccalis* was found and in two, in addition to the amebas, a species of *Trichomonas* was found. Four of these six patients had never been in the South.[2]

Authors differ in their statements relative to the pathogenic features of protozoa. I do not wish to enter into a discussion of these differences of opinion, except in so far as it is necessary to make clear my own views as to why they exist. The frequency with which authors who have done no particular work in this field have copied from others may partly explain these differences. In such instances varying statements are found by them, in the different articles on the subject, and, being unable to throw the weight of their own opinions either one way or the other, through lack of personal work, they are compelled to make indefinite statements regarding the pathogenicity of the parasites under discussion. Such statements are mere conclusions, drawn from the assertions of others, and serve only to complicate matters by adding another indefinite chapter to further confuse subsequent authors. Had all of the published articles pertaining to animal parasites been written by men whose statements were based on their own work, we would, no doubt, by this time possess a far clearer conception of their pathogenic qualities.

It seems that either a negative or a positive statement, made without qualification, that protozoa are pathogenic, would be wrong. There is no doubt that they are seen in the feces of persons who show no symptoms of their presence. However, in such individuals they are generally found in comparatively small numbers. Their mere presence, under such conditions, does not prove that they do not possess pathogenic qualities which, perhaps under different conditions, would become apparent. My own work has certainly strongly indicated the existence of such properties.

Bacteriologists have shown that diphtheria bacilli and pneumococci may frequently be found in the throats of healthy individuals; that typhoid bacilli may be harbored, and transmitted to others, by persons who have never had a recognized attack of typhoid fever. A parallel condition may also be seen in at least one protozoan infection, for it has been long known that all that was necessary to produce an acute outbreak of malarial fever in some apparently healthy southern residents was to send them to the mountains. The *Plasmodium malariæ*, which they had harbored, under the condition in which their host had lived, had not possessed sufficient pathogenic qualities to cause the manifestation of symptoms, but a climatic change, alone, in such cases has been all that was necessary to cause them to show pronounced pathogenicity.

Individual resistance, no doubt, plays an important rôle in the explanation of the fact that the parasites may be found in persons who show no symptoms. Any of us are liable to infection; having acquired such, we may show symptoms immediately or may harbor the parasite, without symptoms, for an indefinite period. This is probably due to the fact that the organism is unable to do more than barely exist and reproduce itself in its host. The cause of this inability, as already mentioned, may be due to high resistance on the part of the host or, as suggested by Musgrave and Clegg, to the non-establishment, on the part of the parasite, of a satisfactory symbiosis with some bacterium or other parasite; a condition which has been found necessary for the growth of these organisms in culture media.

An example of this apparent resistance may be cited in individuals with amebic infections, who have recovered from a typical chronic dysentery. Such patients will often be found to harbor amebas for years and during this period may show no symptoms beyond an occasional short recurrence of the dysentery. Some do not show even this, but, if left untreated, are liable later to develop digestive disturbances and obscure pains along the colon.

Amebas in persons living in cold climates do not, as a rule, produce disturbances so serious as those seen in persons in tropical countries. The patients seen here were generally having from three to eight watery movements a day, with some mucus, but, as a rule, no blood. This, however, is not strange, for we know that persons with this disease who will not improve in tropical countries may receive great benefit by moving to cold climates; also that persons who have suffered for years with this condition generally have less trouble in winter than in summer.

Two reasons probably account for these infections being so frequently overlooked: (1) the fact that it is commonly believed that these parasites are not found in persons living in this climate; their presence not being suspected, examinations for them are not often made; (2) the fact that stools are not always examined by a method by which this group of organisms may be recognized.

The technic by which our examinations have been made is not new but will be described in detail, with the hope that it may assist some who care to go further in this work. It is the same as that which I have used for some years, while doing similar work in Louisiana, and it has been found more satisfactory than any of the other methods.

The patients are given from ½ to 1 ounce of Epsom salts before breakfast on the morning selected for the examination. After breakfast they go to the laboratory where they wait until they desire to have a bowel movement. They are then sent to a toilet where, after voiding urine, they defecate in a commode. This specimen is examined at once. A small drop of the liquid feces, or a small piece of mucus, if obtainable, is placed on a slide, covered with a cover glass and examined on a warm stage, using a 4 mm. (1/6 inch) objective. (These warm stages are easily made from almost any metal, such as copper, zinc, tin, etc., which will transmit heat and is soft enough to permit being cut into the desired shape with shears. They may be used on the ordinary stage of any microscope and are kept warm by means of a small flame from an alcohol lamp or a gas burner.) If the first movement is too solid to permit the making of a satisfactory examination without being diluted, it will be found necessary to have the patient wait for a second or third movement, these being collected in the same manner. The last stools passed will, at times, be found so watery that they are almost useless for examination. Those passed between the first movement and these watery movements will generally be found most suitable. It is best to obtain two or three movements and examine several cover-glass preparations from each.

2. These mouth cases are not included in the 145 cases on which this article was written.

Many infected cases are overlooked in both the North and South, through the fact that a technic similar to the above is not used. Patients are frequently seen here who have passed through numerous competent hands, but in whom parasites have been overlooked. In nearly all of these cases, this was accounted for through the fact that they had been asked to send or bring a specimen for examination. The same mistake occurs in hospital work. In these, specimens are sent to the laboratory where they may remain for several hours before being examined. A report based on an examination made after such a delay is valueless in eliminating protozoa. In some such instances they might be found, but in many cases they would not, for it is almost impossible to recognize and differentiate these organisms after their characteristic motility has been lost.

I have done nothing toward working out the sources through which these infections may have been acquired. It is probable that in the summer amebas may exist in northern water-supplies and that infections occur as in other climates. It is also possible that some infections may be acquired through uncooked vegetables and fruit which have been raised in the South and shipped moist to the northern markets or by direct transmission through previously infected persons.

It seems as though the geographical distribution of these organisms is greater than is generally supposed, and it is probable that careful examinations will show that they frequently exist in countries now thought to be almost free from them.

Many points regarding the life habits of these parasites, their methods of reproduction and the manner in which they cause symptoms—whether through mechanical irritation or toxins—remain to be cleared up. A great field is open to workers who wish to devote their time to the study of some of the problems along this line.

CONCLUSIONS

1. The common belief that intestinal protozoa are seen only in persons who have lived in or visited the South or tropics is erroneous. They are frequently found in persons who have always lived in the North and, when seen in great numbers, are generally found associated with chronic diarrheas, obscure abdominal pains or anemias.

2. Many infected cases are probably overlooked; first because parasites are not suspected and, hence, not looked for; second, because poor technic is used in examining the specimens.

3. Of the animal parasites found in patients who had never been in the South, protozoa were more frequently seen than all the other varieties.

4. *Entamœba tetragena*—a pathogenic ameba recently separated from *E. histolytica* and *E. coli* by Viereck—was often found in persons who had never been in the South. It is probable that this organism accounts for many of the chronic diarrheas seen in persons living in this part of the United States.

I wish to thank Dr. Louis B. Wilson for his kindness in having examined with me many of the specimens in which the diagnosis of the particular species of organism was questionable.

Galen on Commercialism.—"The good physician should practice with disinterestedness, not for money but for the good of humanity. It is not possible to covet riches and at the same time to cultivate worthily medicine, that art so noble; if a man devote himself ardently to one, he will certainly neglect the other."

THE RELATIVE VALUE OF PHYSICAL AND FUNCTIONAL SIGNS IN THE MANAGEMENT OF FAILING CIRCULATION*

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The impetus given to the study of pathologic anatomy by the discoveries and theories of Virchow and his pupils influenced clinical medicine so greatly that from that time most of our efforts have been directed toward arriving at a clear diagnosis of the anatomic changes wrought by disease.

Our clinical examination attempts to determine the changes in size and configuration of organs, and by correlating these data with the facts revealed in the history of the patient, we try to arrive at an anatomically correct diagnosis.

Such a conception of our diagnostic aim, and the accompanying neglect of the problems of functional disturbance, could lead only to the therapeutic nihilism which we know followed the triumph of pathologic anatomy. It was seen then that these structural changes could not be cleared away by treatment, except in the few cases in which our remedy deals directly with the cause of the disease. Even surgery, with all its advances, is generally called on to remove the results and not the cause of disease. We must recognize clearly, then, that in the great majority of cases our treatment does not pretend to alter the anatomic changes, but endeavors only to restore the balance of function.

Intelligent treatment, then, should be preceded by an accurate functional diagnosis, which must include a consideration not only of the changes in the organ primarily affected, but of the disturbances set up in the whole body by the failure of that organ to do its share of work. Our neglect of this functional problem has thrown our dependence entirely on the results of our physical examination, so that our conclusions stand or fall with accuracy of the methods employed.

Nowhere in the realm of physical diagnosis can we find more varied or more accurate methods than those which we now use in studying the heart, and their accuracy is due largely to the innumerable autopsy records which have been and can still be of tremendous importance in controlling our findings. It must be remembered, however, that this experience was gained almost entirely in cases of advanced heart disease from which the patient had died as the result of a failure in compensation. Our methods have shown such pronounced and unmistakable changes in these hearts that we now try to discover the beginnings of organic heart disease, or to exclude functional trouble simply by demonstrating slight deviations from our accepted standards. The recent advances in our knowledge of the intricate disturbances that may take place in the heart-muscle have imposed on us the necessity for recognizing these changes also in their incipiency.

Any one who is constantly being called on to say whether a certain pain is anginoid or due to a coronary sclerosis, or whether a little shortness of breath associated with occasional extrasystoles is due to a beginning myodegeneration or to a high diaphragm, will appreciate an inquiry into the accuracy of our methods. After an extended study of these borderline cases, it seems to me that the great majority of physicians over-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

estimate the value of physical diagnosis and pay too little attention to the condition of the other organs whose welfare depends on an intact circulation. They are too prone to diagnose dilatation or hypertrophy whenever they find an increase in the heart dulness, and the patient is made miserable at the prospect of an incurable disease. Credit should here be given to Romberg who was one of the first to deplore this tendency.

We were inclined to believe implicitly in the accuracy of percussion in outlining the heart until Moritz' orthodiagraph enabled us to check our figures, and showed that good men can often make mistakes of 4 to 5 cm. on either side of the heart. Fortunately, we now possess a number of methods, foremost among which I would mention Goldscheider's "threshold percussion" which enables us to outline the heart and large vessels with an error of 0.5 to 0.75 cm. on either side. But even after securing this outline and finding it so nearly in accordance with the orthodiagram, we must still consider the following sources of error:

1. Changes in size and position produced by systole and diastole.
2. Changes in the size of the heart due to respiration.
3. Changes in the size of the heart due to pathologic changes within the chest.
4. Changes in the size of the heart produced by pathologic conditions in the abdomen.
5. Changes in the size of the heart depending on the general configuration of the body.

The left border of the heart is hard to locate for several reasons. For instance, since percussion can be directed only perpendicularly to the surface, the curvature of the chest near the apex causes us to encounter the heart-dulness considerably outside the point where it would appear if we could percuss strictly anterior-posteriorly. Thus, the heart appears to be larger and the error varies according to the degree of curvature. In the emphysematous it may be quite considerable. Palpation should help us most at this point, but unfortunately, the apex-beat is liable to be very diffuse in just those cases in which we must differentiate between beginning dilatation and a neurosis. The apex may lift the chest-wall so widely that the outer border of the pulsation will be sometimes several centimeters outside the real heart-border which is identical with the point of maximum impulse, if that can be made out. Again, the intensity of this impulse is often taken as an indication of the force of the heart contraction, while it really depends largely on the position of the heart within the chest.

The orthodiagraph may also fail us at the apex, as the shadow of the heart is likely to be buried here in that of the diaphragm. The efforts of Moritz to overcome this difficulty do not seem to me to have succeeded sufficiently to warrant us in following his deductions.

The orthodiagram gives us a silhouette smaller than the actual diameter of the heart, owing to its oblique position in the chest. The amount of rotation varies but slightly, still, if the greater diameter of the heart becomes more nearly parallel to the anterior chest-wall, the error introduced might be enough to incline our judgment to the diagnosis of an enlarged heart.

The outline of the heart changes with each systole and diastole, especially on the left side where the ventricle diminishes in size 2 to 3 cm. with systole. The right border moves much less as it is formed by the more feeble right auricle. These changes do not appear on percussion, since only the diastolic outline is obtained, but they are seen very plainly with the orthodiagraph.

Respiration affects the right side of the heart markedly in two ways. The negative pressure during inspiration aspirates the blood into the right auricle, while at the same time the diaphragm expresses blood from the abdomen into the thorax. Then expiration reduces the size of the right auricle.

The change in position of the heart which occurs during respiration has a marked influence on the apparent transverse diameter. The base of the heart is more or less fixed by the great vessels, while the apex follows the diaphragm up and down. When it is down, the heart is more nearly vertical in position and the transverse diameter appears to be lessened. At the same time, there is a rotation which further reduces the width of the silhouette. An unequal inflation of the lungs will displace the heart from its position in the mediastinum, and quite frequently this is mistaken for a dilatation.

Foremost among the pathologic conditions of the chest which must be studied in this connection is kyphoscoliosis. We have all seen the bizarre distortions of the heart outline which are frequently met with in this condition. Doubt often remains as to whether there is a dilatation, especially on the right side, or whether the increased dulness is due purely to a change in position.

An apparent increase in the transverse diameter of the heart is seen occasionally in anemia and chlorosis, in which it is due to an atelectasis of the left lung which allows the heart to be pushed against the anterior chest-wall. The diagnosis of dilatation appears even more justifiable when a mitral murmur is present, but this error may be avoided by determining the position of the diaphragm.

The base of the heart may be lowered by the lengthening of the aorta which takes place in some cases of aneurysm and aortic sclerosis, and a dilatation of the heart chambers is diagnosed to explain the perplexing circulatory symptoms.

There are a number of abdominal conditions which in their symptomatology may closely imitate cardiac disease. They have this in common, that the abdominal cavity is distended, the diaphragm is pushed upward and the heart is forced to take a more nearly horizontal position. This can be seen plainly in ascites or in large ovarian cysts. Such an anomalous position, coupled with occasional irregularities, is frequently seen with uterine myomata. Here, besides the mechanical disturbances, there is liable to be a profound anemia due to constant hemorrhage. A mitral murmur, then, with an apparent increase in the transverse diameter of the heart, and the irregularities seem to render a diagnosis of heart disease most probable, but the complete disappearance of all signs and symptoms on removal of the tumor shows conclusively that the disturbance was purely functional. The same explanation applies to the so-called hypertrophy of pregnancy. Here also we have learned that the apparent heart changes are due to the rise of the pregnant uterus and not to any changes in the heart itself.

A distention of the fundus of the stomach, with its attendant elevation of the left diaphragm, is one of the most common causes of heart symptoms. The numerous extrasystoles, anginoid pains and widening of the heart dulness frequently induce the beginner to diagnose serious heart trouble with its bad prognosis. The determination of the position of the diaphragm enables us to recognize this condition, and relief from all symptoms may be secured in a few days with a suitable diet.

Before deciding on the presence of the dilatation we must compare the relations of the heart dulness to the whole body. The neglect of this important rule has led to the theory of cardiac hypertrophy at puberty. The thorax lags behind the heart in its development at this time, so that the heart becomes relatively large; the apex beat can often be felt below the fifth interspace outside the mammillary line, and the impulse is very heaving on account of the thinness of the chest-wall. The coexistence of these findings with a juvenile arrhythmia so frequently seen is strongly suggestive of myocardial disease, but the whole condition clears up with the development of the thorax.

The theory of constitutional heart weakness worked out by Kraus is of the greatest importance in this connection. In my experience this condition has been almost invariably associated with the general asthenia described by Stiller. Characteristic of this habitus is the long, narrow thorax with the lower ribs descending almost vertically, and a very narrow epigastric angle. The abdominal wall is generally relaxed and all the viscera are ptotic. The diaphragm is also lowered so that the shadows of the tenth and even the eleventh ribs may appear above it. The influence of this position on the circulation has been shown so masterfully by Wenckebach that I shall merely refer here to his paper. The loss of apical support leaves the heart hanging from its basal attachments, and the transverse diameter may be diminished markedly by the more nearly vertical position. Under these conditions, it is almost impossible to be sure of a transverse enlargement, and I can remember many cases in which I hesitated for some time to diagnose a heart lesion.

In obesity, not only is the diaphragm pushed up, with an apparent increase in the transverse diameter of the heart, but the uncertainties of percussion are enhanced by the greater thickness of the chest-wall.

Thus we see that any attempt to found the differential diagnosis between functional and beginning organic heart disease on a questionable enlargement is pseudoscientific. Since the methods at our disposal are inaccurate and do not furnish sufficient data in themselves, we must welcome two more factors which can be of great service in reaching a conclusion—the questions of function and of probable etiology.

By far the most important evidence in this problem is to be derived from a study of the circulatory changes throughout the body, and little signs of failure can be found, in this way, long before the most careful methods can detect anything wrong with the central organ. A large soft liver associated with severe flatulence and distention of the stomach are usually the first tidings of a break in compensation, and edema of the ankles soon completes the picture of right-sided failure. Sometimes this well-known syndrome is preceded a few days by a sudden gain in weight due to interstitial edema without any other objective sign. This point, while well known, does not seem to have received the attention it deserves, but I would emphasize it particularly as it has proved invaluable in my hands.

Pulmonary symptoms are generally the earliest signs of embarrassment of the left side of the heart. Attacks of dry cough, ending perhaps in the expectoration of a little bloody serum, often precede the final attack of pulmonary edema by several years. In the more chronic cases, atelectatic patches with fine râles at the bases of the lungs point to a deficiency of the left ventricle. A decrease in the usual large amount of urine is always highly suspicious, and a balance between intake and output will prove a definite retention of fluids.

A factor of the greatest importance and one that must not be overlooked in the differentiation between functional and organic heart trouble, especially in patients over 40 years of age, is the presence of arteriosclerotic changes in the aorta and large vessels. As aids in making our decision may be mentioned the ringing, high-pitched second aortic sound, unequal elevation of the subclavian arteries, pupillary changes and the characteristic radiogram.

The smallest symptom raises our suspicions when coupled with slight rheumatic disturbances. In the absence of any signs of valvular disease, we think of adherent pericardium or a mitral stenosis unaccompanied by a murmur. Especially when there is a history of chorea do we think of rheumatic myocarditis with its nodules in the Tawara system.

A positive Wassermann reaction has sometimes changed my convictions about a doubtful case. I remember particularly a patient whose ailment had for years been treated as functional. This woman, aged 42, had recurring attacks when for days and weeks the normal rhythm would be interrupted by numerous very painful extrasystoles. When every method of treatment had been exhausted in vain, the positive Wassermann was discovered and she became entirely well under specific treatment.

An enlarged thyroid is often overlooked as the cause of severe heart trouble. I refer not only to the cases of hyperthyroidism, but to those cases in which an ordinary goiter located under the sternum interferes with a venous back-flow to such an extent as finally to produce organic disease.

When we come to the treatment of these diseases, we must study still further the functional side of the problem. Leaking valves and an increase in the size of the heart do not call for medication, so long as the heart muscle compensates and maintains a good circulation. It is only when the signs of insufficient circulation begin to appear in various parts of the body that we must interfere.

For purpose of treatment, heart diseases may be divided into two groups; the first includes all cases of rheumatic origin and the other is characterized by a primary progressive disease of the arteries. The common signs of failure in the first group are: râles at the base of the lung posteriorly, a gain in weight, enlargement of the liver and edema of the ankles. It is in these cases that digitalis earns its great popularity, and we must judge of the rate of improvement by the subsidence of the symptoms just described and not by any diminution in the size of the heart. In my experience the finding of narrowed heart dulness is generally the result of autosuggestion. The disappearance of edema, an increase in the total amount of urine, and a slowing of the heart-rate are much more reliable gauges of the heart's condition.

The arterial degenerations of the second group often lead to conditions closely resembling those of the first group. Here, too, there may be a leaking aortic or mitral valve with dilatation and hypertrophy of either ventricle, but the treatment must be along different lines. Not only is the heart diseased in these cases, but there is a deterioration of almost every vital organ following years of deficient blood-supply. This is particularly true of the kidney and the symptoms in these cases are frequently those of slight uremia. The arterial origin of the apparent heart disease is betrayed by the

high blood-pressure, headache, gastro-intestinal symptoms and particularly attacks of nocturnal asthma.

Digitalis will only aggravate such cases, and treatment must be directed toward relieving the kidney. Most important then is a salt-free low protein diet, supplemented by the free use of diuretics.

Above all, we must remember that we are dealing not with diseased organs but with sick people, and in studying the physical changes in one part, we must not overlook the secondary changes throughout the whole body.

THE RELATION OF CARDIAC IRREGULARITIES TO TREATMENT *

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In the treatment of heart disease the interest centers chiefly on the symptoms of broken compensation, and to a lesser extent on sensations referable to the heart. Changes in cardiac rate or rhythm may influence either of these. A feeling of palpitation sometimes accompanies tachycardias and marked irregularities; and sensations of heart-jumps or heart-stops are common to those who have extrasystoles. Even though the trouble seems to be nervous, and the general circulation is well maintained, nevertheless, so long as the rate or rhythm of the heart is disturbed a condition is present which fixes the attention of an apprehensive patient and interferes with his recovery.

EFFECTS OF DISTURBED RHYTHM ON THE BLOOD-FLOW

Variations in the cardiac rhythm may, moreover, actually impede the circulation. There is an optimum range for the heart-rate which permits this organ to act at the best advantage, and rates which are much above and much below this are mechanically disadvantageous. Very fast rates interfere with the filling of the heart during diastole, and slow rates are not compensated for by an increased output at each systole. Henderson[1] has shown that for the normal dog the total output from the heart does not increase proportionately to increases of rate above the normal. The shortening of diastole lessens the filling of the heart and while the total output increases fairly rapidly with increases of rate up to 120 beats per minute, increases in rate beyond this are accompanied by rapidly diminishing increases in total output, until beyond still higher rates (150 to 220) there is an actual diminution in the total output. On the other hand, rates below 80 per minute are accompanied by a reduced output which is almost proportional to the reduction in rate. This applies both to continuously rapid and continuously slow rates as well as to occasional variations in rhythm. A missed beat, for example, is not entirely compensated for by an increased expulsion of blood at the next systole, while a series of very rapid contractions are apt to be ineffectual.

Variations in rhythm may also be mechanically disadvantageous for the reason that the auricles and ventricles contract simultaneously. During such simultaneous contractions the auricles cannot empty themselves into the ventricles, but send a reflux wave back into the veins, opposing the flow in these vessels. In paroxysmal tachycardia the heart action may be so rapid that the ventricular systoles coincide with the auricular systoles of the following heart-cycle (Wenckebach's critical heart rate).[2] The same thing may occur when the conduction time between auricles and ventricles is greatly slowed, or when extrasystoles, originating in the ventricles, cause these chambers to contract simultaneously with the auricles. In such cases the auricular contractions oppose the venous flow. In auricular fibrillation the auricles are motionless from the mechanical point of view, and while the mechanical effect of auricular contractions has probably been overrated,[3] still in mitral stenosis the auricles seem to be a factor in maintaining compensation,[4] and their loss of coördinate contractile power must be mechanically disadvantageous. Finally, irregularities may be disadvantageous for the reason that the ventricles contract in an abnormal manner. Electrocardiograms have shown the ventricular extrasystoles commonly pursue an abnormal path in spreading over the ventricular muscle and such extrasystoles frequently produce pulses much smaller than one would anticipate from the duration of the preceding diastoles.

For these reasons it is evident that cardiac irregularities deserve more attention than has usually been accorded to them in the treatment of heart disease. The same heart muscle which could carry on the circulation if it contracted regularly and at a proper rate would be insufficient when contracting irregularly, too frequently, or too slowly. This seems to be the explanation of the signs of insufficiency which may occur during prolonged attacks of paroxysmal tachycardia. A similar insufficiency may develop during paroxysms of auricular fibrillation[5] and disappear when the latter pass off. The occurrence of very numerous extrasystoles may also be accompanied by increased symptoms of insufficiency. In these cases the potential capabilities of the heart probably remain unchanged, but the wasteful manner in which the muscle is made to contract causes the insufficiency.

SCOPE OF DISCUSSION

In discussing the relation of cardiac irregularities to treatment we shall limit ourselves to the commoner and more important forms and shall discuss the relation of drugs both in causing and alleviating these. Unfortunately, it is difficult to transfer the results of animal experiments to man. In the first place, relatively large doses of drugs are commonly used on animals, and "acute" experiments are not strictly comparable to the common therapeutic practice of giving small doses of a drug over a prolonged period of time. In the second place, we are usually dealing, in clinical cases, with an abnormal heart muscle which may be sensitive to small doses or insensitive to relatively large doses of a drug. For these reasons the results of animal experiments must be constantly checked by observations at the bedside and these latter need the most careful scrutiny in order to be reliable.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Henderson, Yandell: Acapnia and Shock; A Principle Underlying the Normal Variations in the Volume of the Blood-Stream and the Deviation from This Principle in Shock, Am. Jour. Physiol., 1909, xxiii, 345.

2. Wenckebach, K. F.: Ueber eine kritische Frequenz des Herzens bei paroxysmaler Tachykardie, Deutsch. Arch. f. klin. Med., 1910, ci, 402.

3. Henderson, Yandell: The Volume Curve of the Mammalian Heart and the Significance of This Curve in Respect to the Mechanics of the Heart-Beat and the Filling of the Ventricles, Am. Jour. Physiol., 1906, xvi, 325.

4. Hirschfelder, Arthur D.: The Volume Curve of the Ventricles in Experimental Mitral Stenosis, and Its Relation to Physical Signs, Bull. Johns Hopkins Hosp., 1908, xix, 319.

5. Fox, G. H.: The Clinical Significance of Transitory Delirium Cordis, Am. Jour. Med. Sc., 1910, cxl, 815.

VAGUS IRREGULARITIES

The various forms of cardiac irregularities have but little in common beyond the fact that some seem to depend on changes in the heart muscle and others on nervous influences. They must, therefore, be taken up separately in their relations to treatment.

The irregularities which are due to unusually labile vagus control of the heart rate occur most frequently in young persons, in neurotic individuals, and after infectious diseases. They are favored by the use of digitalis.[6] As these irregularities have no significance beyond indicating an unusually active vagus control they do not require treatment and the patient or relatives, if alarmed, should be reassured. Large doses of atropin will cause their complete or partial disappearance, with a simultaneous increase in heart-rate, but the effect is usually only temporary and the drug is not indicated for therapeutic purposes.

HEART-BLOCK

Partial block, or an interruption of some but not of all stimuli traveling from the auricles to the ventricles, has been frequently produced in susceptible individuals by drugs of the digitalis series, viz., digitalis, strophanthin, squills. For example, in a patient recently at the University Hospital the intravenous injection of 1 mg. of strophanthin caused a previously regular heart to show an immediate partial block, with one ventricular to two or three auricular beats.[7] The mechanism by which digitalis causes partial block in man is not entirely understood. Since it stimulates the vagus nerve, and such stimulation may cause partial block, one may assume that we are dealing with a pure vagus effect. In the majority of cases, however, a simultaneous slowing of the auricles has not occurred, which would seem to indicate that in these hearts the conduction apparatus between auricles and ventricles was abnormally sensitive to digitalis. When the conduction time is already reduced, as shown by a lengthened *a-c* interval on the venous pulse, one should be especially cautious in the use of digitalis.

In the treatment of a patient with heart-block, whether partial or complete, our first endeavor should be to find and to remove the cause. If the patient has been taking large doses of digitalis or allied drugs these should be temporarily discontinued. Of the various lesions which may effect the bundle of His, such as tumors, acute inflammations, fibrous changes and syphilitic processes, the latter alone are directly amenable to drugs, and in the presence of a positive Wassermann reaction, antisyphilitic treatment is urgently indicated. Improvement following such treatment has been recorded on several occasions.[8] It should be remembered, however, that blocks may disappear spontaneously, especially when they occur in connection with acute infectious diseases.[9]

When a complete block does not disappear either spontaneously or as a result of treatment, the circulation may be improved, theoretically at least, either by increasing the abnormally slow ventricular rate, or by increasing the efficiency of the individual ventricular contractions. It is known that toxic doses of digitalis may increase the ventricular rate so markedly that it exceeds the auricular rate,[10] and the question naturally arises whether smaller doses might not increase it sufficiently to be of therapeutic value in complete block. Few deliberate attempts[11] to accomplish this are on record, and these have not given striking results. In a case which I reported with Dr. Barringer,[12] large doses of digitalis did not increase the ventricular rate, but they did cause ventricular extrasystoles; and it is possible that the rapid ventricular rate of experimental digitalis poisoning is due to a succession of extrasystoles. If this be true, we can expect no beneficial results to follow an attempt to increase the ventricular rate in patients with complete block by pushing digitalis medication. On the other hand, the slow ventricular action is no contraindication to the use of this class of drugs, for the latter do not slow automatically beating ventricles. The good results which sometimes follow the use of digitalis in complete block is probably explainable by its effect on the efficiency of the individual muscular contractions.

In partial heart-block digitalis should be used very cautiously if at all, because it tends to increase the block, and this may more than compensate for any beneficial effect it has on the force of the ventricular contractions. In some cases of partial block the irregularity may be overcome by the use of atropin injections. I have seen one case in which atropin stopped the block, but in several other cases the injection of atropin was ineffective.[7]

EXTRASYSTOLES

By extrasystoles we mean cardiac contractions which originate in parts of the heart muscle other than those normally governing its rate. These seem to be due either to abnormal stimuli or to a local condition of increased muscular irritability. Extrasystoles are extremely capricious in their appearance and this makes it very difficult to demonstrate the effects of drugs either as causative or curative factors. In elderly persons they are less apt to disappear completely than in young individuals; probably because in the former they are more often due to chronic myocardial changes, while in the latter they are often due to acute changes or to toxic agents. The abuse of tobacco is generally recognized as an important etiologic factor and I have seen several cases in which extrasystoles disappeared in young individuals after discontinuing tobacco. Tea, coffee, or any condition which increases the general nervousness of an individual may also perhaps increase the irritability of the heart muscle and the tendency to extrasystoles. In large doses digitalis is capable of causing extrasystoles. In smaller doses its effect is not so certain. Wenckebach believes that experimental evidence favors the view that small doses of digitalis lessens cardiac irritability and he has seen extrasystoles disappear in patients to whom small doses of the drug were given. Owing to the capriciousness of extrasystoles I am inclined with Cushny to doubt a direct relation between the drug and the disappearance of extrasystoles and have never been able to convince myself that this effect was produced independently of its effect in lessening the cardiac insufficiency. In two patients I have recorded the occurrence of extrasystoles on long, continuous tracings before and after intravenous injections of 0.001 strophanthin, but I was not able to demonstrate any definite effect of the drug on the irregularity.

6. Cushny, Arthur R.: The Therapeutics of Digitalis and Its Allies, Am. Jour. Med. Sc., 1911, cxli, 469. Wenckebach, K. F.: The Effects of Digitalis on the Human Heart, Brit. Med. Jour., November 19, 1910.

7. Van Zwaluwenburg, J. G.: Some Observations on Heart-Block, Arch. Int. Med., 1911, viii, 141.

8. Erlanger, Joseph: The Physiology of Heart-Block in Mammals, with Especial Reference to the Causation of Stokes-Adams Disease, Jour. Exper. Med., 1905, vii, No. 6; 1906, viii, No. 1.

9. Peabody, Francis W.: Heart-Block Associated with Infectious Diseases, Arch. Int. Med., 1910, v, 252.

10. Cushny, A. R.: The Action of Substances of the Digitalis Series on the Circulation in Mammals, Jour. Exper. Med., 1897, ii, 233.

11. Bachmann, George: Complete Auriculoventricular Dissociation Without Syncopal or Epileptiform Attacks, Am. Jour. Med. Sc., 1909, cxxxvii, 342. See also Wenckebach, Note 6.

12. Hewlett, A. W., and Barringer, T. B.: The Effect of Digitalis on the Ventricular Rate in Man, Arch. Int. Med., 1910, v, 93.

Occasional extrasystoles which are not accompanied by evidence of broken compensation or by nervous symptoms do not, in themselves, require treatment. Possibly drugs will be found which will lessen an abnormal local irritability of the heart muscle. At present, however, we must treat extrasystoles on general principles. In very nervous individuals, the treatment should be directed toward relieving the nervousness. Tea, coffee, and especially tobacco, should be forbidden. Attention should also be directed toward factors which might damage the heart muscle, such as acute or chronic infections, arteriosclerosis, etc. High blood-pressure and cardiac dilatation probably serve as abnormal stimuli to the heart muscle, and improvement in the extrasystoles may occur when these are lessened. On the whole, our treatment of extrasystoles is very unsatisfactory, and, in many cases, they persist in spite of all our efforts.

AURICULAR FIBRILLATION

Auricular fibrillation, which is the most important and most serious form of cardiac irregularity, is characterized clinically by an extreme degree of ventricular irregularity and by an absence of gross auricular contractions. Frequently, it begins as paroxysms of greater or lesser duration which tend later to become permanent. Auricular fibrillation has many points in common with auricular extrasystoles, for both seem to be due to an abnormally irritable condition of the auricular muscle. Both are sometimes seen in the same patient and transitions have been described.[13] While organic myocardial changes are usually assumed to be responsible for auricular fibrillation, there is evidence that nervous or toxic influences may precipitate attacks of this irregularity in susceptible individuals. Cushny and Mackenzie cite cases of this sort from digitalis, and I have reported two cases to which this explanation seems possible, although, in the reports, such a possibility was not discussed. In one, a single injection of strophanthin converted a rapid and regular pulse [auricular tachycardia (?)] into fibrillation which remained permanent.[14] In the other, a case of complete heart-block, large doses of digitalis twice caused the auricular waves to disappear from the tracings and on both occasions they reappeared when the digitalis was discontinued.[12] Attacks of auricular fibrillation may be first seen after operations,[5] and it is possible that changes in the heart muscle produced by the anesthetic may be responsible for their occurrence. Finally, auricular fibrillation is very common in the late stages of exophthalmic goiter, probably on account of some toxic action of the abnormal thyroid secretion on the heart muscle.

In the great majority of cases of auricular fibrillation we are dealing with a permanent condition, which persists in spite of all treatment. Even the paroxysmal form of the irregularity is remarkably difficult to control and we have no certain method of preventing or aborting the paroxysms. For example, in a case recently under observation at the University of Michigan Hospital, the frequent recurrence of the irregularity gave opportunity for testing the effect of many cardiac remedies. None proved very efficacious, though pilocarpin injections sometimes seemed to abort the attack.

Although the efforts to check auricular fibrillation have proved so futile, nevertheless it is in this class of disturbed rhythm that the most brilliant successes have been achieved with drugs of the digitalis group. These do not stop the fibrillation, but they slow the ventricles and render them less irregular. The pulse becomes larger and fuller, diuresis often sets in, the dyspnea lessens, and the swelling of the liver diminishes. In auricular fibrillation a large number of stimuli seem to originate in the auricles, and the ventricular rhythm depends on the number of these which succeed in crossing the bundle of His. Digitalis, by increasing the block at this point, reduces the number crossing and consequently the ventricular rate. Even such a partial regulation with a reduction of the ventricular rate to about 80 is highly advantageous, and may be followed by a most marked improvement in the circulation. When the ventricular rate is already much below 80, as happens occasionally, the value of digitalis is much less certain. Experience has shown that patients with auricular fibrillation and fast ventricular rate vary greatly in their reaction to digitalis medication, young individuals with mitral valve disease being far more favorably influenced than elderly patients with myocardial disease. According to Lewis[15] mitral disease is frequently associated with some damage to the His bundle. This reduces its conductivity, and the further reduction brought about by digitalis is responsible for the beneficial results of this drug in this class of patients. We should not forget, however, that young individuals, in general, are more apt to show a marked vagus control of the heart, and, that, in consequence of this, digitalis is probably more apt to produce vagus effects in young than in old patients.

CONCLUSIONS

Each form of irregularity has its own problems. With regard to treatment these have been in part solved, but for the most part they still await solution. To accomplish this we need more experimental evidence having direct bearing on the use of drugs in cardiac irregularities and we need, especially, studies concerning the effect of drugs on the irritability of the heart muscle, for abnormal irritability seems to play an important part in the causation of extrasystoles and auricular fibrillation. Finally, we need more accurate studies on the effect of cardiac remedies on patients with heart disease, following some such scheme as that recently suggested by Mackenzie.[16] From data thus obtained we may expect to be able to select drugs and to predict their effects with greater precision than has been possible in the past. Nor does it seem improbable that new drugs or new indications for old drugs will be discovered by such careful studies.

13. Hewlett, A. W.: Auricular Fibrillation Associated with Auricular Extrasystoles, Heart, 1910, ii, 107.
14. Hewlett: Heart-Block in the Ventricular Walls, Arch. Int. Med., 1908, ii, 139.
15. Lewis, T.: The Reaction of the Heart to Digitalis When the Auricle Is Fibrillating, Brit. Med. Jour., 1910, ii, 1670.
16. Mackenzie, J.: A Scheme for Investigating the Effects of Treatment on the Human Heart, Heart, 1910, ii, 9.

Production of Artificial Life.—The failure of scientists so far to produce "artificial life" is not to be charged against the science of biology. Very few of the attempts to produce "artificial life" have been made by biologists, who realize too well the complexity of the problems involved. The biologists will be satisfied for a number of years to come if they succeed merely in analyzing what goes on in a living cell, in terms of physical and chemical processes. From time to time they will attempt to imitate a structure or a process by means of a working model; but they will not speak of artificial life until they are quite sure of all the conditions that play a part in this most intricate of phenomena.—B. C. Gruenberg in *Scientific American*.

THE EFFECT OF THE DIGESTIVE SECRETIONS ON THE ACTIVITY OF DIGITALIS AND ALLIED DRUGS *

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As is well known, the glucosids in general are comparatively unstable chemical substances and are easily broken down into a sugar and some other substance. A number of factors are operative in splitting up the glucosidal molecule, but chief among them, especially in the presence of heat, are certain enzymes, the alkalies, and the mineral acids.

In view of these facts it is not at all surprising to find that certain of the digitalis glucosids have been reported to be broken down to a greater or lesser degree, either by the enzymes of the gastric or pancreatic secretion, or by the acids or alkalies added to these enzymes to make them active. Three researches may be noted as specifically showing this deterioration.

In 1896 Deucher observed clinically in cases of heart disease and dropsical conditions that digitalin verum was almost invariably much more potent when given subcutaneously than when given by the mouth. As this difference was much greater than is common when other drugs are thus administered he came to the conclusion that the digitalin was probably changed either in the stomach or in the intestinal tract into partially inert compounds by the action of the hydrochloric acid of the stomach or by the ferments found in the stomach and intestine.

In an effort to prove whether this hypothesis was correct or not Deucher[1] carried out a series of experiments in which definite amounts of digitalin verum were subjected, with certain exceptions, for twenty-four hours to the action of artificial digestive secretions. For the purpose of subsequently determining the changes, if any, which were produced, frogs were injected with equivalent amounts of the digitalin, subjected to artificial digestion, and an undigested control, the time of appearance of the systolic stoppage of the exposed hearts being noted as an end reaction. From these experiments he came to the conclusion that the digitalin was partially broken up into inert compounds by the action chiefly of dilute hydrochloric acid, 0.2 per cent., although the presence of pepsin seemed to accelerate the breaking down to some extent. The pancreatic solution employed by him was found to be inactive.

Deucher further suggested the possibility that the other glucosids of the digitalis group might be broken up by the action of the digestive agents, but he seems to have only made experiments with digitalin verum.

In 1907 Löwy[2] supplemented Deucher's work by investigating the effect of acid, acid pepsin, and alkalies, on the infusion of digitalis, and on the pure principles helleborein and strophanthin. He found that in the presence of heat, after twenty-four hours, hydrochloric acid and acid pepsin solutions reduced the activity of the infusion and of helleborein. He concluded, however, that the 0.2 per cent. acid at the body temperature alone caused the deterioration noted and that the pepsin was without effect. Löwy also noted that moderately strong alkali solutions (0.5 per cent.) decreased the activity of the infusion.

The activity of strophanthin was not found to be changed by acid pepsin digestion.

As opposed to this latter view Hatcher,[3] in working with strophanthin, came to the conclusion that both acid peptic and alkaline pancreatic digestion for two hours caused some diminution in the toxicity of the strophanthin. In considering the opposed finding of the two investigators, however, it is to be noted that strophanthin is an indefinite term and it is quite possible that the two observers worked with different strophanthins, one of which was more easily attacked by the digestive agents.

As a fact of considerably more importance, it was found by Hatcher and Bailey[4] that the toxic dose of strophanthin for cats by the stomach was five or six times that by intravenous injection, and after a lengthy series of experiments they came to the conclusion that the lessened activity of the drug when given by the stomach depended only to a small degree on the destructive action of the digestive secretions, and that the chief factor in decreasing its toxicity depended on a delayed absorption.

Findings such as these with digitalin verum, with the infusion, and with strophanthin, raises the very important question of proper dosage of these bodies. With a drug so powerful as digitalis, no therapy can be regarded as safe unless the exact strength of the drug employed is known, and if deterioration goes on in the stomach and intestines before absorption these facts should be known.

To this end a number of further experiments along this line were deemed worth while, not only as confirmatory of the findings above recorded, but also to test the rate of deterioration by making use of an exact assay method for determining the degree of change of the substances in question, after subjecting them to the action of the digestive agents for a time more nearly analogous to the conditions found *in vivo*. These were accordingly tested to determine the degree of deterioration when subjected to the action of hydrochloric acid, with and without the addition of pepsin, and of alkali with pancreatin, and in certain instances of emulsin, a glucosidal-splitting ferment found in bitter almond and other seeds.

For the purpose of assaying the preparation before and after digestion the one-hour frog-heart method was used. This, in brief, consists in determining the least amount of the drug which will just produce permanent systole of the ventricle of the frog *Rana pipiens* at the end of one hour. The drug is injected in solution into the anterior lymph-sac, and a temperature of 22 C. is maintained throughout the experiment, the heart being exposed at the end of one hour.

DIGITOXIN

A control was first established for digitoxin by dissolving a weighed amount in 30 per cent. alcohol. The assay value by the method briefly described above was found to be 0.008 mg. per gram of frog weight.

To test the effect of the gastric secretion on digitoxin, a weighed amount placed in a cylinder was subjected to the action of an artificial gastric juice containing 0.25 per cent. hydrochloric acid and 0.1 per cent. scale pepsin. The undissolved digitoxin was placed in an incubator

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Deucher: Deutsch. Archiv. f. klin. Med., 1896, lvii, 1; 1896-7, lviii, 47.
2. Löwy: Wien. klin. Wchnschr., 1906, xix, 1157.
3. Hatcher: Am. Jour. Physiol., 1908, xxiii, 303.
4. Hatcher, R. A., and Bailey, H. C.: Tincture of Strophanthus and Strophanthin, THE JOURNAL A. M. A., Jan. 2, 1909, p. 5.

at 38 for three hours, and was then taken up with enough alcohol to just form complete solution. This solution assayed 0.011 mg. per gram frog weight. A second weighed amount similarly treated assayed after three hours in the incubator, 0.010 mg. per gram frog weight. Eighteen hours later this solution of digitoxin which was kept at room temperature assayed 0.013 mg. per gram frog weight.

A weighed amount of digitoxin was then subjected to the action of 0.25 per cent. hydrochloric acid for three hours at 38°. At the end of this time it assayed 0.01 mg. per gram frog weight; at the end of eighteen hours at room temperature it assayed 0.014 mg. This decrease in activity, approximately parallelling that of the acid pepsin digestion, would indicate that the acid alone was the active agent in breaking down the digitoxin molecule, and that the pepsin was inactive.

Pancreatic secretion containing the pancreatin 0.1 per cent. dissolved in 0.15 per cent. sodium carbonate was allowed to act at 38° on weighed amounts of digitoxin for periods of three hours, and also eighteen hours at room temperature. At the end of three hours the assay gave 0.008 mg. per gram frog weight in duplicate experiments, thus showing no decomposition from pancreatic digestion. When subjected to digestion for eighteen hours, however, there was some deterioration, the assay value being 0.010 mg.

FRENCH DIGITALIN

French digitalin, consisting mainly of digitalin verum, was tested, the undigested control assaying 0.012 mg. per gram of frog weight. A weighed amount was subjected to the action of an artificial gastric juice for a period of three hours. It then assayed 0.013 mg. per gram weight. After eighteen hours at room temperature the assay showed further deterioration, 0.016 mg. per gram frog weight being necessary to produce systolic stoppage of the heart. Hydrochloric acid alone was approximately equally effective in causing deterioration as the combined acid and pepsin.

No deterioration was obtained under treatment of weighed amounts of French digitalin with an artificial pancreatic secretion.

DIGITALEIN

Digitalein was assayed, the effective dose being 0.024 mg. per gram of frog weight.

In a weighed amount, 0.25 per cent. hydrochloric acid and 0.1 pepsin were added. After digestion at 38° for three hours the assay showed a deterioration, the amount then necessary to produce systolic stoppage of the heart being 0.032 mg. Hydrochloric acid, 0.25 per cent., without the pepsin caused deterioration so that at the end of three hours at 38°, 0.030 mg. was required to bring the ventricle into permanent systole.

Under artificial pancreatic digestion very little, or no deterioration, was observed. A value of 0.026 mg. was obtained, but owing to incomplete absorption in a large number of assays this result is to be questioned.

Digitalein was tested to determine the effect of emulsin, the glucosid-splitting ferment of bitter almond seeds. The assay value after three hours at 38° gave 0.028 mg. as the amount required to produce systole of the ventricle, thus showing a slight decomposition.

TINCTURE OF DIGITALIS

Having found by the above assays that the chief glucosids found in digitalis were less active after digestion with an artificial gastric juice, experiments were carried out with the tincture. As the glucosids digitoxin, digitalin, and digitalein, are all represented in the tincture, these experiments would also be expected to give analogous results and to be in the nature of duplicates.

The first tincture to be assayed gave a value before digestion of 0.010 c.c. per gram of frog weight. After evaporation of the alcohol, 0.25 per cent. hydrochloric acid and 0.1 per cent. pepsin were added and kept at 38° for three hours. At the end of that time the assay value was found to be 0.014 c.c.

A second tincture assayed 0.008 c.c. per gram of frog weight. An evaporated portion was subjected to artificial gastric digestion for three hours at 38°, and then gave an assay value of 0.012 c.c. After standing eighteen hours at room temperature the assay value was 0.016 c.c.

This tincture was subjected also to the action of an artificial pancreatic juice made up with 0.2 per cent. alkali and 0.1 per cent. pancreatin. In two experiments there was about 25 per cent. deterioration after three hours at 38°. Whether this is invariable cannot be stated, but in view of the fact that none of the glucosids showed deterioration, it may be questioned. It also brings up the point that in the crude tincture, enzymes natural to the digitalis leaf may become especially active with an alkali present, and thus explain the discrepancy in results. This point will be further investigated.

STROPHANTHIN

The discrepancy in the dose of strophanthin is so great by stomach and intravenously that, it was hoped in view of the deterioration with the digitalis glucosids, an investigation of the changes going on under artificial digestion might throw some further light on the question.

The control assay of strophanthin gave a value of 0.00055 mg. per gram of frog weight.

A weighed amount of strophanthin under artificial gastric digestion assayed 0.00065 mg.; thirty-six hours later the assay showed marked deterioration at room temperature, the value being 0.0015 mg. A second weighed sample after three hours' digestion assayed 0.0007 mg., and at the end of twenty-four hours at room temperature, 0.0010 mg. Pancreatic digestion showed much less action on strophanthin. A sample subjected to alkaline pancreatic juice for three hours assayed 0.0006 mg.; twenty-four hours later the assay was still 0.0006 mg. A second sample under pancreatic digestion for three hours showed no deterioration, nor when tested after twenty-four and thirty-six hours at room temperature.

Emulsin had a very slight effect, reducing the activity after three hours in the incubator, to 0.0007 mg. per gram frog weight.

That strophanthin might also be destroyed in the liver is a possible conclusion, but experiments with minced cats' and frogs' livers showed that no decomposition took place after two hours at 38°.

From this series of experiments it is to be noted that the acid of the gastric secretion invariably causes some diminution in the action of the glucosids of digitalis and strophanthus. It is not believed, however, that an exact determination of the degree of decomposition in practice can be made, for in all probability the rate is somewhat more rapid under actual conditions, owing to the motility of the stomach and the comparatively greater dilution of the glucosids. The rate of deterioration, however, appears to be about the same for the various glucosids, about 25 to 35 per cent. in three hours, so that

this fact need not be taken into notice in therapeutics. The further factor, however, of the action of the decomposition products of these glucosids must be considered, and it is possible that certain of the untoward effects of digitalis medication may be due to them. At any rate in so far as is possible it would seem advisable to prevent such decomposition, and it is suggested that this might be done by requiring the official galenical preparations to be neutral, and in practice, by prescribing an alkali along with digitalis. Ignoring the specific irritant action of these bodies on the intestinal tract also, it would seem advisable that the drug should be given between, rather than at meals, when the gastric acidity is at the maximum and such a procedure might possibly not cause undue irritation if a large quantity of fluid were taken at the same time.

SOME FACTORS IN THE TREATMENT OF MYOCARDIAL LESIONS *

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The difficulty of arriving at a positive conclusion as to the exact nature of the tissue changes existing in the cardiac muscle of patients presenting undoubted evidences of heart disease makes it prudent to discuss the following cases under a clinical title rather than one based on morbid anatomy, for few, if any, can distinguish between the signs of chronic myocarditis and those of degeneration, or can say when the molecular disturbance consequent on febrile or other intoxication ends and the congestion with small-cell infiltration of a myocarditis begins. It is true that the physician draws his own mental picture of the changes in each case, but he will have difficulty in describing it in words that will stand the criticism of his audience.

The teachings of Dr. James MacKenzie and other members of the English school have done much to increase our knowledge regarding diseases of the heart, and have given additional impetus to original research in this particular branch of medicine, but, up to the present time, this advance does not appear to be accompanied by any corresponding progress in methods of treatment. It may be an erroneous impression on my part, but it would appear as if the tendency were to give exclusive attention to remedies which influence the mechanism of the heart and to neglect or to discuss superfically treatment that might alleviate or arrest changes in the cardiac muscle itself. Only too often do cases present themselves in which all treatment seems to have ceased after a successful or unsuccessful effort has been made to whip a heart into compensation by means of some member of the digitalis group, and although in many instances this is the result of the patient ceasing to present himself for advice just so soon as he feels well enough to attend to his daily vocation, nevertheless this would be very greatly modified if from the commencement the patient were made to understand that after his apparent recovery it would be necessary for him to follow certain rules of life or to continue some particular line of medication if he wished to retain his restored health.

My object in considering "some factors in the treatment of myocardial lesions" is to emphasize the benefits that very often accrue from the systematic and persistent use of these remedies, generally described as alteratives, which in some direct, but imperfectly understood manner, influence the nutrition of the myocardium. I have no new agents to suggest; all of them are familiar to every practitioner, but in the majority of books they are mentioned so cursorily in comparison with the prolonged discussions on digitalis, strophanthus and squills that very often their value is underestimated, no fair trial is given them and consequently many cases that would have been benefited by their early and persistent administration are allowed to go along unchecked until the patient becomes a chronic sufferer, to whom death comes as a merciful relief.

When we are brought in contact with a weak myocardium the first endeavor is clearly to depict the case, to decide whether the condition is associated with a valvular lesion, as in combined endocarditis and myocarditis, or if it is secondary to a valvular lesion, as in failed compensation; to satisfy ourselves whether it is due to lack of nutrition, as in aortic and coronary disease and anemia, or is the result of toxins such as we find in influenza, syphilis, uterine fibroids, habitual constipation or disordered metabolism. Is it not possible that, while it is fully realized how much all the organs of the body depend on cardiac efficiency for their functional activity, it is not so constantly borne in mind that disturbance in any part of the body may have a deleterious influence on the heart? I mention this because much of the recent literature on disease of the circulatory system conveys the impression that individual study of diseases of the heart is liable to lead to the same results as specialization in the study of other organs; it narrows the clinical horizon; and while this may not be fraught with much danger to the man who is treating only the organs of special sense, it is absolutely inadmissible to the internist who is dealing with viscera which are so mutually dependent on one another for the normal performance of their functions.

One of the first criticisms that might be made regarding the use of such constitutional remedies as the iodids in the treatment of myocardial disorders is the fact that very frequently their administration is not continued for a sufficient length of time to obtain results. In cases of syphilis the physician does not hesitate to keep his patient taking these remedies for weeks, or, it may be, months, without any interruption; but in the treatment of myocardial inefficiency he very frequently stops after ten days or two weeks because he has not obtained the same brilliant results that so often follow the use of digitalis for the same length of time; he seems to argue that because digitalis often restores compensation in a case of valvular disease within two weeks, therefore, the iodids, if they are going to be of any service, must in the same length of time restore to full activity muscular fibers which have been poisoned and in which the toxic process is still going on; he seems to forget that he is not dealing with a cardiac stimulant, but that some form of malnutrition or imperfect elimination has to be corrected before the muscle can recover so as fully to respond to stimulation, and it is this correction that the iodids accomplish.

The following case was one that impressed me very much with the benefits that may sometimes arise from the prolonged use of iodids:

CASE 1.—Mr. A. W. consulted me in August, 1904. For some weeks he had suffered from dyspnea on exertion and hardly a night passed without an attack of cardiac asthma, so that latterly he dreaded going to bed and always slept in an armchair. He was of spare build, had led a good life,

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

smoked not more than five cigars daily, and denied all luetic history. Examination showed the blood-vessels moderately thickened, the area of cardiac dulness normal, sounds weak but otherwise normal, the liver tender and the area of hepatic dulness increased. All other organs were normal. The patient's physician told me that he had already given him, at different times, digitalis, strychnin and nitroglycerin, but without any more than evanescent relief and that the conditions were growing worse. Now he was given proto-iodid of mercury for ten days and then a reliable preparation of digitalis with the idea that the state of the liver had probably prevented its beneficial effects on the former occasion. The patient experienced considerable relief so that he could spend his nights in bed, but his rest was very much disturbed and he was far from well.

About the end of September I discontinued the digitalis, ordered 10 gr. of potassium iodid three times daily, told the patient to continue this for two weeks and then report his progress. On October 3 an accident occurred that completely incapacitated me for work during the next four months, but at the end of that time the patient came to my office, saying that he did not wish to consult me about himself as he was better than he had been for years and his friends remarked on his improved appearance; he only desired to congratulate me on my escape and make sure that I was alive, as he might want me again. In response to an inquiry about his own condition he said that after taking the last medicine, which was the iodid, he came to report according to his instructions but could not see me on account of my sickness; he therefore on his own responsibility continued taking the iodod and was still taking it at that time, from the middle of September, 1904, to February, 1905, and, he added, "Doctor, I never felt better than I do now and I am afraid to stop it." He is now 73 years of age, attends to business regularly and has occasional attacks of cardiac weakness, generally following a cold or some other slight indisposition, but never approaching his former seizures in severity.

CASE 2.—Mr. K., aged 58, first consulted me Sept. 7, 1906. He complained of a sensation of oppression over the sternum and pain in the left forearm induced by the least exertion. He had suffered more or less since an attack of influenza five years previously but had been very sick since April 18, 1906, so that he could not walk one block without making some pretext that would enable him to stand still for a few moments. The cardiac apex was in the fifth space, half an inch beyond the nipple line, the mitral sound was impure, a systolic murmur could be heard over the aorta with a spluttering second sound, the blood-vessels were thickened, and an arcus senilis was well marked; the liver was large, distinctly palpable but very slightly tender. There was no luetic history. Already the patient had received nitroglycerin, digitalis and caffein without benefit. At once 10 gr. of potassium iodid three times daily were ordered for him, and every other night he received a pill containing blue mass and rhubarb compound. At the end of five days he said that the pain and oppression were very much less both in frequency and severity, also that he could walk for some distance with ease, and as he lived over one hundred miles from San Francisco and business affairs demanded his presence, he decided to return home and come to San Francisco every few days, making a round trip of over two hundred miles to report his condition. Twelve days later he was very much better, had been absolutely free from pain during the previous week, although he had walked as many as ten blocks without resting, the area of heart dulness had become normal, the sounds were much clearer, and the liver was also improved. October 1 he complained of feeling very much depressed and as he had been taking potash continually for more than three weeks I thought that possibly it might be responsible for those feelings and consequently substituted the proto-iodid of mercury for it, but at the end of ten days he felt just as poorly, and a mixture containing arsenic and nitroglycerin was prescribed. This also failed and he was put back on potassium iodid with such happy results that late in November he started on a pleasure trip through British Columbia and Alaska. He continued taking his iodid all this time and did not discontinue it until the end of April, 1907. He gained 20 pounds in weight.

I did not hear from him again until Sept. 23, 1907, when he came to me from some "springs," where he had been spending a short holiday with friends, who advised him to take a hot mineral bath for the purpose of breaking up a cold; but while in the bath he experienced a sudden onset of severe cardiac oppression which still continued in a milder degree and from which he never fully recovered, although examination did not reveal any change. Under treatment with cardiac stimulants, vasodilators and iodids given at different times he improved so that during the remaining two and a half years of his life he was able to attend to his business and make at least two trips from California to New York and other cities, but he never got back to the buoyant condition of health he enjoyed before taking the hot mineral bath. The last time that I heard from him was late in 1909, when he was having repeated attacks of cardiac asthma, and early in 1910 I was notified that he had died at his own home in the country, but that an autopsy could not be obtained.

Not only must the prolonged administration of these remedies be insisted on, but the dosage has to be taken into consideration in some patients on account of their idiosyncrasy regarding iodids.

CASE 3.—The patient, Mr. C., was a man aged 47, with grey hair, weighing 257 pounds. Exertion produced angina pain in the chest and right arm, which was most severe in the right wrist; heart area was increased nearly 1 inch to the left of the nipple line. There were no cardiac murmurs but the aortic sound was accentuated and impure; the liver was large and tender, and there were tender nodes at the level of the fifth and seventh dorsal vertebræ to the right of the spinal column. The patient had been sick for four months before I saw him on Sept. 16, 1907. His diet was restricted and consecutively he received proto-iodid of mercury, arsenic and nitroglycerin, all of which afforded him some, but not very much, relief. November 6 he was given his first dose of iodid which very soon produced iodism and the remedy was discontinued for a few days and then given in a saturated solution with the instructions that he should begin with small doses and gradually increase the amount; but various trials showed his inability to take more than four drops of the saturated solution twice daily without producing coryza and pain in his jaws. This seemed such a useless dose that my inclination was to abandon the use of the drug, but the patient asked permission to continue it, as he felt much better during its administration. In April, 1908, he left San Francisco and returned in the following July when he told me that during his absence he had been a member of a prospecting party, working at an elevation of 4,500 feet, and that he had been able to do chores around the camp and carry buckets of water along the trails without suffering any inconvenience. I saw him last in the end of 1909, when he told me that he had always kept his iodid "on tap" and took it in the same small doses for a few weeks at a time whenever he felt that he was losing ground. I mention this case simply to illustrate the fact that good results may be obtained from the protracted use of small doses when the patient shows an idiosyncrasy regarding the drug, my previous opinion having been that even under such conditions small doses were useless.

In children similar good results follow the prolonged administration of the syrup of the iodid of iron. Among other cases there are two boys, members of different families, who have been under my observation for the last three years with weak heart muscles, so that every few months their hearts would dilate, murmurs of muscular incompetence would develop at the mitral orifice, the patients would be put to bed and kept on different preparations of iron, arsenic and digitalis until compensation was restored, and then after a time history would repeat itself. Since they were given the iodid of iron their condition has improved immensely, in regard both to their hearts and to their general health.

A sufficient number of cases have been mentioned to illustrate the point for which I am contending, but it

might be well to mention some features that were common to all of them. They all showed evidences of weak myocardium and hepatic enlargement without signs of local edema or general dropsy; the question of acquired or inherited syphilis was thoroughly exploited with uniformly negative results; improvement took place in the older patients with diseased blood-vessels as well as in the boys whose arteries were healthy; all of them gained weight during the treatment. These facts suggest the thought that the cardiac disturbance was part of a constitutional disorder, and that there was just as little chance of relieving the patients by treatment directed to the heart alone as there would be of curing a diabetic eczema by means of no other agency than a local application.

It is impossible to do more than theorize regarding the *modus operandi* of the iodids because our knowledge of alteratives, the physiology of the lymphatic system and the relation of both to general metabolic processes is still very scanty. It may be that where there is some disturbance of metabolism, resulting either from the introduction of toxins into the body or some other cause, secondary injurious products are formed in amounts which the liver and other glands are incapable of destroying or eliminating, and that the iodids promote their elimination in a manner similar to that in which they eliminate the products of the syphilitic poison. What toxins cause the trouble in these cases it is impossible to say, because, just as specific toxins manifest their affinity for different tissues, it is only natural to conclude that the resulting or secondary toxins will exhibit a corresponding variation; but some recent work in metabolism prompts the suggestion that accumulation of lactic acid in the tissues, either as the result of its excessive production or defective destruction and elimination, is responsible for a considerable proportion of the cases of myocardial distress. The following are the premises on which the hypothesis is based.

TOXIC EFFECT OF LACTIC ACID ON THE HEART

Martin Flack[1] states that "if a frog's ventricle is placed in a weak solution of lactic acid (1 in 10,000 normal saline solution) the contractions become less and less, so that finally the ventricle stops in a state of complete relaxation"; and Bachmann[2] perfused rabbits' hearts with solutions of lactic acid and obtained increased rate with greatly diminished force of contraction and a simultaneous dilatation of the coronary arteries, a fact that would indicate lactic acid to be a paralyzing agent for all muscles of the cardiovascular system; neither did it require a strong solution; but even amounts so small as those occasionally found in the blood of a normal rabbit had some paralyzing effect.

THE SOURCE OF LACTIC ACID IN THE HUMAN BODY

Lactic acid is produced in the human body in the process of metabolism and also as a result of muscular exertion. Ryffel[3] demonstrates conclusively that lactic acid is formed from glucose as well as from other carbohydrates and possibly to a lesser extent from proteids, and quotes Magnus Levy's suggestion that lactic acid may be an intermediate stage in the transformation of carbohydrate to the higher fatty acids, which is known to take place in the body in the formation of fat from carbohydrate. He also mentions the observations of different investigators which tend to show that increased consumption of glucose in muscles is accompanied by a corresponding increase in the formation of lactic acids. This last fact is of interest in relation to the production of lactic acid in muscular tissues as a result of their activity, and especially in connection with the particular organ now under consideration, because, while most observations have been made on the muscles of animals, Prof. Hugh A. Stewart[4] has shown that dextrose is consumed in the human heart. Two and a half hours after the death of a patient he excised the heart and perfused it with a solution of dextrose, with the result that in ten minutes the whole heart was beating strongly; it continued to beat until the perfusion was stopped, more than two hours later, and the washings tested for the amount of dextrose. The analysis showed that the human heart, like that of other animals, is capable of breaking down the dextrose of the perfusing fluid. Locke and Rosenheim,[5] working on the rabbit's isolated heart, had previously shown that the consumption of dextrose depended on some definite relation between the potassium and calcium salts in the perfusing fluid, and concluded that the calcium salt is especially necessary for the conversion of chemical changes into mechanical work.

THE NORMAL FATE OF LACTIC ACID IN THE HUMAN BODY

As lactic acid is a cardiovascular poison normally produced within the body, it is important that we should know how it is destroyed before it is present in such quantity as to produce its toxic effects. Normally the great bulk of lactic acid is destroyed in the tissues by various processes. Embden and Salomon have shown that some of it may be retransformed into glucose by a process of condensation, and, as we have already seen, some of it may become fat. Furthermore, Stoklasa obtained from muscle and blood two anaerobic ferments, one which converted glucose into lactic acid and another which changed the lactic acid into alcohol and carbon dioxid. Lastly, experimentally it was demonstrated that excised "muscle kept in air or nitrogen showed a gradual increase of lactic acid, the rate of which depended on the temperature, until finally irritability was lost, when there was no further increase of lactic acid. If, however, the muscle was kept in oxygen there was practically no such increase at physiologic temperatures, and the loss of irritability was indefinitely postponed." From these and similar observations it was concluded that an adequate supply of oxygen not only prevents the accumulation of lactic acid, but even enables the muscle to destroy preformed lactic acid. This may be due to a direct oxidation of the acid, or it may be the result of the action of the oxygen on the alcohol, which we saw was one of the products of anaerobic fermentation, so that by removal of this product further anaerobic decomposition of the lactic acid is facilitated.

Ryffel settled the question regarding the relation between muscular exertion and the formation of lactic acid in the human subject by observing:

> The lactic acid in urine from competitors in a twenty-four-hour track-walking race was in no case above 6.5 mg. per hour, but found relatively large quantities in that passed after violent exercise—430 mg. after 0.36 mile, 818 mg. after 0.6 mile, running as fast as possible around a track 33 laps to the mile. The lactic acid in the blood, taken from a vein in the forearm immediately after the exercise, was also increased

1. Flack, Martin: Advances in Physiology, Longmans, Green & Co., London, 1909.
2. Bachmann: Zentralbl. f. Physiol., 1907, xx, 801.
3. Ryffel: Lactic Acid in Metabolism, Quart. Jour. Med., January, 1910, p. 229.
4. Stewart, H. A.: Jour. Exper. Med., January, 1910.
5. Locke and Rosenheim: Jour. of Physiol., 1907, xxxvi, 205.

in one case from 12.5 mg. at rest to 70.8 mg. per 100 c.c. Excess of lactic acid disappeared from the urine in about thirty minutes after stopping, but in forty-five minutes the lactic acid of the blood was not quite reduced to normal (15.9 mg. per 100 c.c.).

He concludes that the important factor in the accumulation of lactic acid from muscular work "is the relation between the activity of the muscles and their supply of oxygen."

At rest the muscles are fully supplied with oxygen by the circulation. This is also practically the case with limited activity, but, when the activity is great, the oxygen supply, although increased, is not sufficient to prevent the formation of excess of lactic acid, which makes its way into the blood, and, if in sufficient concentration, is excreted by the kidneys. Lactic acid, moreover, is quickly oxidized by the tissues, so that the return to the normal at rest is fairly rapid, occupying less than one hour after short periods of violent activity.

The importance of this work in relation to myocardial disorders is more fully recognized when we notice the different conditions that may lead to accumulation of lactic acid in the tissues; these are: (1) Increased and *rapid* formation of lactic acid by violent muscular activity; (2) inadequate supply of oxygen to the tissues; (3) absence or diminution of the lactic acid destroying ferment in the tissues; (4) absorption of lactic acid from the alimentary canal; (5) excessive supply of carbohydrate food. Possibly the last three are all closely related because there is experimental evidence to show that lactic acid is both formed and destroyed in the liver, just as in the muscles of the body. We also saw that it might accumulate in the tissues if there were not enough oxygen supplied to facilitate its destruction, and so, in like manner, since the transformation of carbohydrates is a function of the liver cell, it is easy to conceive that as the result of either excessive carbohydrate supply or diminished hepatic activity lactic acid may accumulate during the process of transforming carbohydrates to fat.

The summary of these different observations that I have presented is that, so far as they relate to the heart, the muscles of the whole cardiovascular system are poisoned by a very slight increase in the amount of lactic acid in the tissues; that this excess may be produced by perfectly physiologic processes, such as violent exertion, and when respiration in the same length of time cannot supply an equivalent increase of oxygen for the destruction of the acid, accumulation takes place. Or the excess and accumulation may be due to defective metabolism arising from a variety of causes already mentioned.

These observations show that the myocardial changes found in people who have been subjected to hard muscular exertion, are not necessarily secondary to those found in the coronary circulation, but that both may be due to a common toxin; they indicate where we may look for the cause of the disturbance when treating cases such as those mentioned in an earlier part of this paper; and, lastly, they give us the opportunity of adopting a line of treatment, both medicinal and dietetic, which promises better results than that now generally followed.

I do not wish to be understood as asserting that lactic acid is the only or most active product of metabolism in producing cardiovascular disturbance; my only object was to call attention to the great work that is being done by the physiologic and pathologic chemists to aid us in the treatment of the diseases now under consideration; at present the whole subject, so far as its application to the treatment of heart disease is concerned, is in the embryonic stage, but to me it carries much promise for the future. Everyone engaged in the practice of our profession must at one time or another have felt how eminently unsatisfactory are our present methods of treatment, how, in the majority of cases, our most brilliant results are only temporary improvements and short postponements of the inevitable day, and, as the patient leaves the consulting room, there remains behind him the feeling that we have never really reached a basis on which reasonable hopes for a cure may be established. With a growing knowledge of the chemistry of normal and abnormal metabolism it is probable that much of this will be changed, and that, especially among our younger patients, much will be done to restore a debilitated heart to its full vigor and also to prevent many of the cardio-vascular changes consequent on infections and malnutrition.

Another matter of interest is the use of the calcium salts in the treatment of myocardial weakness during prolonged or severe pyrexia, such as we find in pneumonia or the continued fevers. Early in 1908, Sir Lauder Brunton advised the use of calcium chlorid, in doses of from five to ten grains every four hours, for the purpose of maintaining the heart's action when failure was imminent in an elderly woman who was suffering from an influenza pneumonia. He based the advice on his knowledge that calcium chlorid is a constituent of Ringer's solution, which is used for perfusing isolated hearts during physiologic experiments. Many years ago Dr. Ringer observed that when the frog's heart was perfused with a sodium chlorid solution in distilled water the heart's action was not sustained so long as when the solution was made with water drawn from the ordinary faucet, and on examination found that the latter contains calcium salts, which, of course, were removed during the process of distillation, and since that time it has been generally recognized that the sodium chlorid solution will stimulate the heart to activity, but that the addition of calcium is absolutely necessary if it be desired to continue the contractions for any length of time.

Since that time Locke and Rosenheim, as has already been mentioned, have given the explanation of the phenomenon by showing that in the perfused heart "the consumption of dextrose is dependent on a certain concentration and balance of the calcium and potassium in the perfusion fluid, and they conclude that these salts, more especially calcium, are necessary for the conversion of the chemical changes into mechanical work." During the last three years I have followed Sir Lauder Brunton's suggestions in the treatment of pneumonia and also typhoid fever and have been most favorably impressed with the results, possibly from the fact that the administration of the calcium was commenced early in the course of the disease and continued until the beginning of convalescence with the hope of maintaining the heart's action rather than of reestablishing it when failure had commenced.

I must offer an apology for submitting a line of treatment that at the present time is so problematical. It is true that, like the blind man whose sight was subsequently fully restored, we now see things dimly, "men as trees walking"; but possibly the day is not far distant when we shall have a broader and a fuller vision. At any rate, the object of this paper will be served if it directs the attention of physicians, situated similarly to

myself, to the work that is being done in behalf of treatment by those who devote themselves to the elucidation of problems in metabolism; and it may be that the latter gentlemen will be stimulated to further endeavor by the knowledge that their work is appreciated and waited for by the clinician, as well as by the thought that, in the words of Robert Burns, "A chiel's amang you takin' notes, and faith he'll prent 'em."

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SCHMOLL, KERR, HEWLETT AND HALE

DR. WILLIAM B. SNOW, New York: It seems to me that in the study of cardiovascular derangements it is of first importance to consider the causes and their correction. It cannot be doubted by the clinician that the origin of these troubles is largely toxic. That the conditions originate in the alimentary canal through overfeeding, errors of digestion and an imperfect metabolism—particularly the first—seems to have been demonstrated. In my judgment the study of heart lesions should be along the same lines as the study of so-called rheumatic conditions, recognizing as causes the toxic effects of overfeeding, poor digestion and impaired metabolism. The regulation of diet to the demands of exercise and maintenance of body weight is, therefore, of first importance in their management. Each case is a clinical study in itself; the symptom-complex presenting is rarely the same in all particulars in any two cases. The treatment cannot be limited to the employment of drugs. Dietetic regulation and the employment of physical agents which tend to restore normal functions are always indicated. In my experience I have found no agent so effective in eliminating the various conditions of toxemia as the radiant light bath, or prolonged application of radiant light to the body with the incandescent lamps of high candle-power. The effect of radiant light on metabolism is remarkable in bringing about normal metabolism. As hypertension is more often the cause of arterial degeneration than any other and as hypertension is caused by toxemia, the indications are two: the relief of hypertension and the relief of the cause of hypertension—d'Arsonvalization for the former, and the regulation of the diet with the institution of habits of exercise for the other.

DR. BOARDMAN REED, Alhambra, Cal.: I feel that the importance of a thorough study of the drugs we have been having cannot be overrated and yet my experience is that, as practical clinicians, we need to know more about the effect of diet and exercise and baths and all that sort of thing. That is, we can do a good deal more with these hygienic and physical measures than we can with drugs. We cannot know too much about drugs, but we need to know and use more the other line of treatment, according to my own experience. I do not think we realize enough the importance of diet. I fully agree with Dr. Snow in regard to what he said about overeating. I am sure that overeating and overdrinking cause more arteriosclerosis and cardiac affections than any other cause, among Americans, at least. I suppose that among the working-class, syphilis and muscular strain produce as much, but among the middle-class Americans overeating is a chief cause of vascular trouble, and I feel that we cannot emphasize that fact and apply the knowledge too much in our practice.

DR. RAY LYMAN WILBUR, San Francisco: I consider the points that Dr. Schmoll makes in regard to functional testing of the heart, aside from physical findings, well taken. I have seen a number of cases of young girls who had been kept in bed because they apparently had enlarged hearts and cardiac murmurs. They often had deviation in the shape of the thorax and in the position of the diaphragm, and I think they belong to the class of transient murmurs so common in young girls. Friedreich Müller says 30 per cent. of young girls present cardiac murmurs, unassociated with disease processes, and the physician is apt, when finding such a murmur, if nervousness is associated with it, to imagine that the child is in a much worse condition than it really is. I have watched some such patients for a number of years and the cases have all cleared up when there was no previous history of rheumatism. From the standpoint of practical treatment I have had more satisfaction from potassium iodid, as recommended by Dr. Kerr, than from almost anything else administered in various heart conditions, particularly in patients with attacks of acute dyspnea without edema, usually neurotic individuals without a syphilitic history. Whether the administration of potassium iodid has an effect on the thyroid, because of which we get some effect on the heart, I do not know, but I do know that clinically I have found it of great value in the class of cases which Dr. Kerr describes.

THE TREATMENT OF GASTRIC ULCER

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The chief indication in all cases of gastric ulcer is rest and protection of the affected part, but here one is brought face to face with an opposite indication in the necessity of nourishing a patient who has already been brought low by a reduced diet, poor digestion, and hemorrhage.

Which of these indications should receive the greatest consideration must depend on the condition of the individual patient. Herein lies the explanation for a certain number of failures which occur when one follows one of the accepted plans of treatment as outlined by rules and tables. One must be governed by principles rather than rules, and in every instance the patient, as well as the case, must be considered.

When there has been recent hemorrhage the patient should be kept absolutely quiet in bed, not even rising to empty the bowels or bladder. Food by mouth should be reduced to a minimum or absolutely forbidden, according to the severity of the case. Under these circumstances an attempt should be made to nourish the patient by enemas and this method should be followed as long as tolerated. But one should not be misled with regard to the amount of nourishment the patient is receiving. Practically, it is not possible to maintain the patient's nutrition by enemas alone but they are of help in the early stage. The following are examples of some of the nutrient enemas which have been found satisfactory:

	Gm.	Calories
V. Leube—		
Finely scraped meat	50 (1⅔ oz.)	40
Raw pancreas, chopped	50 (1⅔ oz.)	85
Rubbed up with enough water to make	250 (8⅓ oz.)	..
		125
Forscheimer—		
Peptonized milk	200 (7 oz.)	80
Eggs	2	150
Brandy	30 (1 oz.)	100
		330
Eggs	3	225
Milk	300 (10 oz.)	195
Common salt	3 (45 grains)	...
		420
Boas—		
Yolks of two eggs	...	116
Milk	250 (8⅓ oz.)	160
		276

A method of feeding introduced by Einhorn[1] and termed duodenal alimentation should be mentioned. He uses a long, small, soft rubber tube, having a small metallic capsule at one end. This is passed into the stomach and allowed to remain until the capsule passes into the duodenum. The other end is made fast by

1. Einhorn: Med. Rec., 1910, lxxviii, 92.

means of adhesive plaster or string, and liquid food is introduced directly into the duodenum. The tube is allowed to remain in position for from ten to fourteen days. In Einhorn's hands, this enabled him to feed and maintain the weight of patients who could not otherwise retain food.

All of the diet-lists given have the common feature of beginning with a minimum quantity of soft or liquid food, gradually increasing over a period of from two to four weeks till the normal quantity is again reached. They all have the disadvantage of being tables; that is, it is naturally suggested that there is some advantage in the particular proportions in which the various substances are given, rather than in the principle on which they are based. Diet-lists are given in every text-book dealing with this subject and need not be repeated here.

The more recent Lenhartz diet is based on the physiologic fact that the stomach, even when empty, is not at rest. Lenhartz thinks it is therefore unnecessary to forbid all food by mouth; on the contrary, since the body has suffered a loss of its protein, the cell-building material, both through insufficient supply and through hemorrhage, it is highly necessary to replace this, and he finds eggs especially suited for this purpose. In addition, egg albumin has the power of combining with a maximum quantity of hydrochloric acid, thus protecting the damaged mucosa from digestion. He objects to the Laube and Penzoldt diets on account of the excessive quantity of fluid they contain.

There has been a warm discussion over the respective merits of the different diets. Some reliable observers report, after the use of the Lenhartz diet, a prompt relief of pain, fewer recurrences of hemorrhages, a gain in weight, and a shorter period of confinement to bed. Others report unfavorable results, no less an authority than Ewald[2] expressing decided disapproval.

If there is no agreement as to details, however, there are certain basic principles so obvious that all acknowledge their importance, and these principles, rather than arbitrary rules, should govern us in selecting a diet, for, after all, unless the diet is adjusted to suit the case rather than the disease, the treatment will be unsatisfactory. All food should be given in a finely divided form, in order to avoid unnecessary mechanical action and possible injury to the ulcerated surface.

Its chemical composition should be such that it does not offer an excessive physiologic stimulus; that is, it should tend to reduce the acidity rather than to increase it. Over this one point there has been much discussion, some arguing in favor of a rich protein diet on the ground that it will neutralize the largest amount of hydrochloric acid, others against protein diet because it is a natural stimulus to the secretion of hydrochloric acid. In fact, it is of more importance in what form the food is given and what particular variety of protein is used. Except when given cold for the purpose of counteracting nausea, the food should be just a degree or two warmer than the body.

It should be of high caloric value; that is, it should be as nutritious as possible, but not bulky, and in order to avoid distention it should be given in small quantities, frequently repeated. Little salt should be used in the preparation of the food or at table, because it acts in two ways to increase the secretion of hydrochloric acid, first, as a condiment and second, by contributing one of the principal elements for its formation.[3]

2. Ewald: Deutsch. med. Wchnschr., 1908, ix, 361.
3. Cohnheim, O.: Die Physiologie des Verdauung und Ernährung, Berlin, 1908, p. 345

In the light of these obvious requirements of the damaged stomach, consider for a moment the well-known diets. Leube uses, in the first and second ten-day period, meat broth and bouillon; in the third period, scraped raw ham and half-raw beefsteak, and in the fourth, red roast beef.

Penzoldt used meat broth and bouillon in the first, second and third ten-day periods, and in the third, raw beef-sausage was allowed. Bouillon was allowed in the fourth period. Lenhartz allows raw chopped meat after the sixth day, and raw ham after the tenth day.

Now, it is a well-recognized fact of physiology that meat extract acting through the pyloric glands is a natural physiologic stimulus to the secretion of hydrochloric acid.[4] Raw meat not only contains more extractives but is less easily digested than cooked meat,[5] and has no advantage unless we desire to increase the secretions of the stomach, which is not the case in gastric ulcer. The nutrient value of the meat extract varies greatly, but it is given by Strauss as from 4 to 12 calories per 100 c.c.; while 100 c.c. of milk containing 3⅓ per cent. of cream has 65 calories; the same quantity containing 10 per cent. of cream has 124 calories.

From these facts it is certainly clear that raw meat, especially cured meat such as scraped ham, as well as bouillon, meat broth and rich meat soups, are unsuitable ingredients for diet in cases of gastric ulcer, for here a diet is needed which is easily digested, leaves the stomach promptly, and does not tend to increase the hydrochloric acid.

In this connection it should be remembered that milk, cream, unsalted butter, and olive oil should be used to as great an extent as possible, on account of their higher nutrient value, liquid form and, last but not least, because the fats tend to reduce the acidity. They leave the stomach promptly and tend to reduce the pyloric spasm which is often present when the ulcer is situated in that region.

Therefore, when the feeding by mouth is resumed, the diet should consist of milk with from 3 to 10 per cent. of cream, thoroughly cooked porridge and oatmeal, rice-meal, corn-meal, with milk, cream and sugar added to taste. Raw or very soft boiled eggs, crackers, buttered toast or milk toast to be added later. Puree of peas, potatoes and poached eggs, junket flavored with fruit juices and custards are also suitable.

Malted milk and the various concentrated prepared foods can be added to give variety to the diet. Pea-soup, sago, tapioca, minced chicken, tender fresh fish, brains and sweetbreads should be added later. The quantity taken at one meal should never exceed 250 gm., or 8 ounces. The temperature should not be above 38 or 39 C. (101-102 F.); that is, warm but not hot.

The medical treatment is directed to reducing the acidity, relieving pain and pylorospasm, and possibly toward exerting some direct influence on the ulcer itself. As constipation is usually present, it must be taken into consideration and the treatment modified accordingly.

The alkalies certainly reduce the acidity by combining with the excess of hydrochloric acid. They should therefore be given in large doses about an hour after meals, and repeated if necessary whenever pain occurs. The following prescriptions are used and recommended by men of wide experience:

4. Cohnheim, O.: Die Physiologie des Verdauung und Ernährung, Berlin, 1908, p. 54.
5. Schmidt, Adolf: Diagnose und Therapie chronischer Diarrhoen, Samml. Zwangl. Abhandlungen a. d. Geb. d. Verdauungs u. Stoffechs-Kr., ii, No. 1, p. 29.

Matthes of Cologne:

℞	Gm. or c.c.	
Infusi radicis rhei	150	ʒ v
Sodii bicarbonatis	6	ʒ jss
Olei menthæ piperitæ	3	♏ xlv

Misce S. A teaspoonful twice daily.

Ewald:

℞	Gm. or c.c.	
Magnesiæ ustæ (magnesii oxidi)		
Sodii carbonatis		
Potassii carbonatis āā	5	gr. lxxv
Pulveris radicis rhei	10	ʒ ijss
Sacchari lactis	25	ʒ vi

Misce S. Half a teaspoonful every hour.

The following are intended to relieve both pyloric spasm and hyperacidity:

Elsner:

℞	Gm. or c.c.	
Extracti belladonnæ	0.1	gr. j-ss
Sodii bicarbonatis		
Magnesii phosphatis āā	10	ʒ ijss

Misce S. A teaspoonful three times a day.

Trousseau:

℞	Gm. or c.c.	
Extracti belladonnæ	3	
Foliorum belladonnæ āā	0.33	gr. v
Extracti gentianæ q. s.		
Fiant pilulæ, No. XXX		

Misce S. One pill before breakfast. Increase slowly to five pills.

Cohnheim:

℞	Gm. or c.c.	
Tincturæ belladonnæ	5	gr. lxxv
Olei amygdalæ dulcis (olei amygdalæ expressi)	30	ʒ i
Vitellum ovi unius		
Aquam destillatam ad	200	ʒ vi ʒ v
Fiat emulsum		

Misce S. Two teaspoonfuls three times a day.

Cohnheim uses the alkalies as follows: Where there is diarrhea, calcium salts; that is, calcium carbonate and calcium phosphate. Where there is constipation, magnesia usta or magnesia ammonia phosphate. Under normal conditions, sodium phosphate, sodium bicarbonate, and sodium citrate.

For direct effect on the ulcer, bismuth subnitrate and nitrate of silver still hold an important place. Cohnheim uses bismuth subnitrate for chronic ulcers in old people, and nitrate of silver in acute cases as follows:

℞	Gm. or c.c.	
Argenti nitratis	0.5	gr. viii
Aquæ destillatæ	200 (dark bottle)	gr. viii

Misce S. One teaspoonful (porcelain spoon), in wine-glass of distilled water, one-fourth or one-half hour before eating.

Dilute solutions of silver nitrate and ferric chlorid have been used to irrigate the stomach with the intention of influencing the ulcer directly. But when it is remembered how soon these solutions become greatly diluted or neutralized, and also that it is never known how near to perforation any ulcer may be, when one considers the distention of the stomach and the retching which frequently occurs while the stomach-tube is being passed, all will agree that this is a method of questionable utility.

External local applications are recommended by practically all authorities; cold in case of hemorrhage and during acute exacerbations, and hot in chronic cases.

All the German specialists recommend and use the balneologic treatment in cases of ulcer. When possible, the patient is sent to one of the well-known watering places, or, if this is for any reason, such as lack of means, impracticable, the waters or salts are used in the home treatment. For robust individuals the Carlsbad water or salts are used, while for those who are thin and anemic, Vichy is recommended. The Germans assert that these waters and salts owe their beneficial effects to their specific action on the glandular tissue of the alimentary tract, while some American writers maintain that the salts simply neutralize the acids present in the stomach.

In addition to these special measures directed to the ulcer, other general treatment should be applied to the constitutional condition. The results obtained by medical treatment vary greatly in different series of statistics collected by different observers. Their value is impaired by the fact that all are not observed for the same length of time, and there are a number of cases in certain series unaccounted for, the termination of which is unknown. The table of results of treatment by various men, the figures for which were collected from various sources, show how widely results of medical treatment differ:

TABLE OF RESULTS OF TREATMENT

Statistics by	Patients No.	Cured %	Improved %	Relapsed %	Died %
Sears	183	22.9	59.0	8.0	7.0
Friedenwald	287	66.0	28.0	....	1.0
Bulstrode	500	....	82.0	40.0	....
Russel	47	42.0	44.7	....	....
Schultze	291	89.0	....	....	....
Subsequently	157	53.0	23.0	15.4	7.6
Lenhartz	...	....	....	....	2.3
V. Leube	...	90.0	6.0	....	2.5
Warren	...	34.0	....	43.6	10.0

Pyloric stenosis, 10 per cent.; carcinomata, 3 per cent.

The mortality is variously estimated (in percentages) as follows:

Musser	8
Regal	from 8 to 10
Lebert	from 8 to 10
Welch	15
Leube	25
Debove and Reynolds	50

Of this last series (Debove and Reynolds), thirteen deaths were due to perforation, five to hemorrhage, twenty to intercurrent tuberculosis, five to inanition, and seven to various causes. These statistics are uniform in one respect: they indicate that at present the result of medical treatment of ulcer of the stomach is decidedly unsatisfactory.

Until the pathogenesis of gastric ulcer is made clear, and a treatment based on etiology is possible, our principal hope for better results must rest on earlier diagnosis. This will be possible when we cease to depend on subjective symptoms for diagnosis and learn to use more universally the tests for occult blood in the feces.

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Hookworm Disease.—In regard to the many bizarre symptoms that have been ascribed to the hookworm, a remark by Dr. Byrd, assistant health officer of Florida, is apropos. "The safest rule to follow is: In all cases of anemia that cannot otherwise be satisfactorily accounted for, examine for hookworms. Don't be thrown off guard looking for dryness of hair and skin, which may be as moist as your own; protrusion of the abdomen, which may be straight as a bean pole; history of ground itch, which you may or may not get; and any other of the hundred-and-one symptoms with which the literature is teeming, but examine the stool at once for eggs and settle this question." And it may be added, after the eggs are found, be sure from blood examination, count of parasites, or improvements of symptoms after treatment that the real trouble is the hookworm before closing the case.—H. J. Nichols in *Medical Record.*

THE DUST MENACE AND MUNICIPAL DISEASES *

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Among the causes of what may not inappropriately be termed municipal diseases infection, irritation and neurovascular tension play a peculiarly predominant part—most of them an obvious part; some, however, are subtle in their workings. To specify three concrete elements corresponding to and mainly responsible for or contributory to these etiologic processes, there are dust, smoke and unnecessary noise; and the one that looms largest in municipal morbidity and mortality is undoubtedly the widespread prevalence of an irritating as well as infecting dust contamination of our city atmosphere. This dust menace and nuisance is preventable, not only in the streets, as is now demonstrated in a few large cities, but likewise in our living and working places, in houses, cars, stores, factories, shops, offices, stations, theaters and churches; in fact, there is a vicious circle here in that street-dust is blown, swept and tracked into habitations, to be swept back into the streets again. Much house-dust pollution would be avoided if the original street-dust were removed or allayed. Says Dr. George A. Soper of New York: "There is something incongruous about a board of health conducting a crusade against smoke and noise and at the same time allowing the streets to be filthy with dust and dirt."

In biographic and occasional references to Benjamin Franklin, it is the usual thing to have pointed out to us his many talents and rare common sense as well as his courageous patriotism and eminent public service. It is, however, perhaps as entertaining and interesting as it is instructive and exemplary to read in the "Autobiography" of his study and efforts relative to dirty, dusty streets in Philadelphia and London, as far back as a century and a half ago. Here as elsewhere does he reveal the master mind in originality and acuity of perception, versatility of faculty, and prompt practicality of action. The dust evil was a seriously annoying problem to him as a citizen if not as a sanitarian; to him dust was at least noisomely offensive if not infective. He writes of his proposal to Dr. Fothergill of London—whom he commends as "a great promoter of useful projects"—that "for the more effectual cleaning and keeping clean of the streets of London and Westminster," contracts be let to have the dust swept up in dry seasons, especially before the shops and windows of the houses are open, and that the gathered heaps of refuse be carried away in close-covered carts. Could Franklin view the methods and results in London, Toronto, Berlin and some other cities to-day, his only regret might be that it had taken so long to inaugurate the improvement; and that so many cities still drag along, apparently contented and unable to cope with a distressing, dust-polluted atmosphere, even worse than in his own day, by reason of the aggravations of modern speed traffic. He concludes:

> **Some may think these trifling matters not worth minding or relating; but when they consider that though dust blown into the eyes of a single person, or into a single shop on a windy day, is but of small importance, yet the great number of the instances in a populous city and its frequent repetitions give it weight and consequence, perhaps they will not censure very severely those who bestow some attention to affairs of this seemingly low nature.**

* Read before the American Climatological Association, Montreal, Canada, June 14, 1911.

Now that for about seven years street-dust as an element in the propagation of disease, especially in large cities, has received such marked and spreading recognition, the problem of street as well as house cleanliness is a live and urgent one. Modern civilization, being mainly materialistic and commercialistic, is responsible for the creation of a multifarious, mixed, material refuse: street-dust is such a pernicious and persistent menace to the public health because it bodies itself forth as veritable synthetic pulverized poison composed of various more or less palpable particles of mechanical, chemical and bacteriologic substances, both irritating and infecting when inhaled.

As long ago as 1870, Tichborne and Tyndall showed that most of the particles of fine dust suspended in city atmosphere are composed of organic matter, and bacteriology has since shown that the invisible part of visible dust, that is, its germ content, is the dangerous element that calls for a drastic and determined movement for the suppression and removal of the menace everywhere. This applies mainly to cities.

Country road dust is composed principally of ground-up rock and is a comparatively clean dirt, irritating to the mucous membranes but relatively innocuous as to pathogenic organisms. Besides, the task of dust-allaying must obviously for some time to come remain a municipal one, excepting in those suburban and more populous, much-trafficked and prosperous outlying communities where even now many miles of macadamized and Telford roads are oiled, tarred, or sprinkled with water.

Apart, however, from the modicum of mineral dust arising from the wear and tear of street pavements by horse, wagon and railway-car traffic, municipal dust represents the accumulation of débris of various kinds, animal and vegetable, such as dried sputum of human origin, horse and dog droppings and slobberings, dead and disintegrated insects, scattered garbage and house sweepings, loaded vehicle losses, smoke and soot—in short, mainly an organic combination which in warm, wet weather is seething with rottenness; and in dry weather is mostly blown into our houses, noses and clothing by gusty winds, or sucked up as noxious, stifling clouds by motor cars while they speed and trolley cars while they are running or braking for a stop.

To the average pedestrian, dust is hardly more than an annoyance; hence arises the large opportunity and high duty of men in our profession to educate the public to the dangers of dust; to show that it is not simply an irritant to the eyes, nose and throat, but a serious carrier of infection by inhalation and swallowing; that the pus-producing germs, so abundant in such dust, may and do infect and produce purulent conjunctivitis, boils and carbuncles, and the graver purulent catarrhs of the nasal, faucial and bronchial tissues.

That most of the communicable diseases of the respiratory tract are produced and transmitted by dust is doubtless true. For years we have had before us the deadly relation of the dust evil to tuberculosis. Were that the only danger, surely the awful prevalence and mortality-rate of the "great white plague" would alone justify the fight for street cleanliness and a declaration of independence against dust distributers. But when one adds to this the host of other dust-borne diseases, catarrhal, tonsillar, bronchial, influenzal, pneumonic, rheumatic, cutaneous, the need for efficient public service in remedying and removing the evil becomes intensely imperative and the demand inexorable for right results.

Epidemics of purulent catarrh, tonsillitis of severe type, influenza, bronchitis, sore eyes, boils, have fre-

quently and commonly been associated with, or have closely followed, prolonged meteorologic periods of dry, gusty weather, when it was too cold to sprinkle the dirty streets properly, or when the city authorities have been too careless in beginning the cleaning and sprinkling of streets early in the season.

Dust particles are necessary nuclei for the formation of fogs (as experimentally shown by Carl Barus) and the suspension of atmospheric moisture; and thus a two-fold unhygienic relation of dust should be brought to mind. In the first place, an excessive amount of municipal dust, attracting to itself a corresponding amount of moisture, actually renders the sensible humidity of the city air more unbearable and debilitating generally. Secondly, conceding "that pathogenic organisms are adherent to particles of dust of various kinds, and that their retention of virulence depends on the amount of hygroscopic moisture with which they are associated," as Harrington points out, the more they are protected by such hygroscopic dust particles, the longer they will sustain the viability to which such moisture is essential, especially in warmer temperatures.

It is a needful thing in public health teaching to dispel the notion—the obsession it has almost become—as to "catching cold." Truly, most of the so-called "colds" are dust infections gotten in places where people congregate and traffic circulates freely, as in street cars, theaters, department stores, moving picture shows, halls, etc. As Woods Hutchinson has aptly put it, "colds" might rather be called "fouls." Human agency is principally at fault in polluting the air with disease-bearing dust, and human agency and energy must be solicited and directed to arrest, subdue and prevent its production and propagation. The so-called air-borne diseases of great cities are really synonymous with dust-borne. Instead of bad air in the vague sense, let us speak of dusty air in the definite sense; instead of the Italian malaria, the Greek derivative *konisaria* (*konis*, dust; *aer*, air).

One of the most significant discoveries of recent times in clinical medicine is the not infrequent causative relation of follicular tonsillitis to the early development of rheumatic, endocarditic and pericarditic complications and sequelæ. On first thought it may seem like a startling and incredible statement to make that dust may at times infect the tonsils, and through these portals cause the most serious and malignant involvements of joint and heart structures; and yet sufficient medical literature and my careful study of several cases demonstrate clearly that the links of the pathologic process do connect.

Dust, then, is not by any means or in the main a mere nuisance and source of public discomfort, but perforce a menace and direct public danger of deadly potentiality.

Further still, as a habitually inhaled mechanical and sometimes chemical irritant alone, dust predisposes the upper air passages to later if not occasional associated bacterial implantation because of the production of a catarrhal soil of ready receptivity and decreased local vital resistance; the germs are not only invited, but embraced and encouraged to stay, multiply and penetrate to the innermost portions of a body which is at the same time somewhat generally debilitated and vulnerable. Here again comes forth a vicious circle. The more dusty the air of our cities, and the more consequent catarrhal irritation, the more sputum, and the more spitting promiscuously in public; and the more people spit the more infectious and dangerous the dust becomes.

The street-cleaning problem cannot be dissociated from the problem of the enforcement of anti-spitting laws. People with nasopharyngeal and bronchial catarrhs must expectorate somewhere; and for many years to come they will do so on our highways. It is practically difficult and a great hindrance to progress in this matter of preventing or lessening expectoration on our streets as long as inadequate and inefficient means and methods of street-cleaning and dust-allaying fail to control or suppress the dust evil.

As the anti-dust campaign, in Philadelphia at least, got its first impetus from the point of view of the prevention of tuberculosis, a special reference to the relation of dust to this widespread disease may be made with propriety. First, the constant inhalation of all kinds of irritating dust makes the invasion of the tubercle bacillus easy. This is well known not only as regards occupational mineral and organic dust, but particularly in respect to municipal street-dust and house-dust of ordinarily constant prevalence. General and local predisposition are coupled in that the environment conduces to the former equally with the latter. Secondly, although less commonly, direct infection with the tubercle bacillus from street-dust may occur from recently expectorated tuberculous sputum that has dried rapidly under a strong wind on a cloudy day; but habitual infections from house-dust are, of course, the usual modes. Thirdly, mixed infections with the common dust germs of pus formation, the staphylococci and streptococci, may occur as well as with the bacilli of pneumonia and influenza. It is to these that we must lay the great burden of the aggravations, complications and fatal terminations of our tuberculous patients. A simple, curable, early case becomes difficult or impossible to jugulate because of a mixed dust infection, and consequent extensive and progressive caseation and cavitation. How many hopeful, more or less curable, tuberculous patients have run a rapidly fatal course because of the daily inhalation of a foul street-dust will never be known.

Says Jacob A. Riis: "All things come to those who wait—and fight for them." The history of the agitation against the dust menace in Philadelphia, and the results obtained there to-day, while yet far from satisfactory, show that educative repetition of the facts and remedies at hand will bring about substantial improvement, and often sooner than expected, a quite rapid progress to still better conditions. In 1903, while president of the Pennsylvania Society for the Prevention of Tuberculosis, I inaugurated a campaign of publicity against the dust evil, particularly as related to the dirty streets and cars. For two years more the attention of the public was called to the dangers of dust, and an endeavor made to have the proper municipal authorities adopt and practice modern means and methods of street-cleaning and dust-allaying. The Philadelphia Rapid Transit Co. (which operates all the trolley-cars in the city) responded to the agitation by abolishing the foul, dusty plush cushions. The city officials were inclined to resent interference with their inertia and indifference, but the criticisms began to tell to the extent that sporadic attempts at better cleaning and sprinkling of streets were made at irregular intervals.

In January, 1909, as chairman of the legislative committee of the society, I took up the work with renewed vigor. Attention was again called to the disease-predisposing and infecting dangers attaching to the actually filthy condition of the streets, and to the stupid, ill-timed, incompetent ways of attempting to clean them; a dry dabbling method of sweeping, in spots at that, with no preliminary thorough sprinkling or flushing of the asphalt pavement, and this done in daytime in the most

frequented streets, causing clouds of dust to be raised to annoy and to endanger thousands of pedestrians. Also the heaps of sweepings, even when moist, were allowed to remain for hours and become dried by the sun and the wind, and usually scattered about again by air-gusts and automobiles. Public opinion began to recognize that such slipshod, lackadaisical inefficiency was due to an inexcusable irresponsibility, if not a shameless cupidity on the part of officials and contractors who could thus disregard public health.

Simultaneously I issued circular letters of queries to the mayors of some twenty-five cities of America and Europe as to the methods and results of cleaning, dust-reducing, and keeping clean the streets of their respective jurisdictions. The replies from the principal cities were tabulated and afforded a basis for a comparative study of the situation, and the results were published in the spring months of 1910 in a series of twelve articles in a few of the newspapers of Philadelphia, mostly in the *Public Ledger*. The cities reporting were twenty-one, including Philadelphia, and stated the requirements of ordinances, what was actually done and how, and with what degree of satisfaction and sanitary safety, according to official opinion. To enumerate the cities alphabetically, there were Baltimore, Buffalo, Birmingham (England), Berlin (Germany), Budapest (Hungary), Cleveland, Denver, Detroit, Dublin (Ireland), Leipsic (Germany), London (England), Minneapolis, New Orleans, New York, Paris (France), St. Louis, Stuttgart (Germany), Toronto (Canada), Vienna (Austria), and Washington, D. C. I was able to supplement these reports by personal observation in some of these cities and in Munich, Germany. To summarize:

1. In a majority of the cities where results were satisfactory, the principal cleaning was done at night, or completed before 6 o'clock in the morning.

2. Thorough sprinkling preceded sweeping. Sprinkling was also done two to four times daily in dry (non-freezing) weather to lay prevalent dust.

3. Flushing wagons or flushing from curb to curb with hose is the method used in preference to sprinkling and machine sweeping in the best cleaned cities. Indeed, sprinkling is seldom necessary where the streets are thus virtually washed two or three times weekly.

4. Hand sweeping by blockmen in day-time is always preceded by wetting with a hand sprinkler.

5. Piles of dirt are immediately removed while wet or damp in covered wagons.

6. Last, but by no means least—and the method which in my judgment is destined before long to supersede all others in street cleaning—is the dustless operation of dust and dirt removal by automobile vacuum street-cleaners, on the principle of vacuum housecleaning which is now rapidly taking the place of the old dirty, dust-raising broom and feather-duster. Recent tests of these street machines have developed the fact that in one hour as much surface can be actually cleaned as was imperfectly gone over with dusty accompaniments by horse-drawn sweepers in six hours.

It was pointed out by contrast that in Philadelphia and some other cities it was adding insult to injury to attempt to clean the streets by methods that aggravated instead of mitigated the dust evil, discomfort and danger. Sprinkling before sweeping was specified in contract but never carried out. Hence the criticism was urged that not only better means and methods needed to be adopted, but more systematic and adequate inspection and supervision of the work done and the methods specified, and a more efficient management generally by the city street-cleaning officials, whether the work was done by the government or by contractors. Otherwise, it was futile and farcical to expect a lessening of the menace of dust. The blame for dirty streets should not be placed entirely on the day laborer who may shirk his job. He is only following an example higher up.

The people were appealed to in these articles, and a public protest sought. If they were insistent and persistent in their demands for clean streets, the city government would be equally insistent in its demand on the contractors. The public was reminded that streets are the ventilating flues of cities, and as a result house ventilation depends much on the purity and quality of street air; whereas, dirty, dusty streets become above-ground air sewers instead of pure air channels.

It soon became evident that a dust-infected people was becoming discontented, and that a city healthful was of greater importance than a city beautiful; in fact, that civic cleanliness made for civic beauty and art. Taxpayers began to realize that they were not receiving an equity of public sanitary safety.

Education has been telling, and the street-cleaning authorities have been seeing a great light in Philadelphia. The methods have improved; the work is more efficiently done; flushing wagons have recently been introduced with effectiveness, but of course too few as yet, and capable of attending to no more than a half dozen of the busy down-town streets. A steady, strong fan-shaped column of water is driven laterally by the pressure of a gas-engine on the rear of the wagon so that all débris is flushed into the gutters from the middle and sides of the streets; the wagons are horse-drawn, passing in pairs, one a little in advance of the other; the streams of water being directed in opposite directions.

It is a hopeful sign of the awakening of the public to demands for civic cleanliness, that officialdom is beginning to respond in a readier performance of its duty and responsibility in safeguarding the public health and incidentally safeguarding respect for law, order and government. To avoid an insurrection of the citizenship, there must needs be a resurrection of statesmanship.

2035 Walnut Street.

BANTI'S SYMPTOM-COMPLEX

WITH REPORT OF A CASE *

J. F. HULTGEN, M.D.
CHICAGO

Patient.—A. H., aged 35, druggist, was admitted to the Englewood Hospital, Nov. 3, 1910. He is a patient of Dr. Charles Piper, through whose kindness I am allowed to study this case.

History.—Sick, or sickly, a good deal; always delicate and pale, but without history of any definite disease until eight years ago, when he contracted syphilis, for which he was treated as well as his rather free habits would permit. Three years ago he consulted Dr. Belfield, who observed the splenomegaly, and advised further energetic antiluetic therapy. The patient used tobacco moderately, and alcohol to excess at intervals; denied any drug addiction.

Examination.—Patient was a thin, icteroid, emaciated, sickly-looking man, with large abdomen, very pale visible mucous membranes and without fever. With all these objective symptoms, he seemed rather optimistic. He complained of great weakness, but no pain, vomiting, nausea, or headache. Appetite was poor; patient had diarrhea for last two or three days before admission; no hemorrhage at any time. Fingers and tongue were tremulous; speech showed some stuttering. Tongue

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

moist, slightly furred; gums pale, yet intact. Pupillary reflexes were negative; patellars exaggerated. Quinquaud's sign present. The lungs, joints, glands and throat were negative. The heart showed a small bruit over the apex; systolic, short, not transmitted to the left; no cardiac hypertrophy, no arrhythmia. Pulse 84, of rather low tension; no basal pulmonary congestion; no edema of the legs. The abdomen was prominent, walls thin; skin smooth, but not discolored. There was a distinct bulging of the left hypochondrium, and moderate prominence of the right upper abdomen. Movable dulness; succussion thrill and ballottement of upper abdominal organs left no doubt as to the presence of a large amount of free fluid in the belly cavity. The spleen was very large, hard, moderately movable and slightly tender; its free border felt distinctly notchy. It extended to a full hand's breadth below the left costal border. The upper splenic border was at its normal level, and the organ showed no sign of ptosis. The liver was distinctly enlarged; its edge was rather dull and a trifle irregular; it was not tender to ordinary pressure. There was no special tenderness over the gall-bladder.

The urine showed no bile, no albumin, no sugar; distinct reaction for urobilin.

The blood: reds, 2,100,000; distinct poikilocytosis; no polychromatophilia, no nucleated reds. Hemoglobin, 45 per cent. (Tallquist). Whites: 2,600. Differential: polynuclears 77.8 per cent., small mononuclears 15.7 per cent., large mononuclears 4.5 per cent., eosinophils 2 per cent.

Course.—The patient gradually gained in appetite, strength and appearance. His weight began to improve slowly, hand in hand with the recession of the ascites and the diminution in size of the spleen and liver. Moderate subicterus remained. His progress may be traced graphically in Chart 1. The treatment consisted in mixed mercury and iodid of potassium medication. In April three successive doses of sodium cacodylate were given by intramuscular injection, but this arsenic therapy was abandoned because of the marked intolerance to it. Mr. A. H. had been able to attend to light professional duties and his condition on May 18, 1911, showed the following symptoms: "Subicteric, yet pale, rather thin; tremulous lips and fingers. Eats and sleeps fairly well, but tires easily and lacks ambition. No headache, no eye or ear troubles; no hemorrhages, and no pains. Ascites greatly diminished, liver and spleen just palpable. Urine shows urobilin, no bile, no albumin, no sugar; microscopically negative. Wassermann reaction (Dr. Mefford) positive.

"Blood: reds, 3,600,000; moderate poikilocytosis, no nucleated reds, no polychromatophilia; hemoglobin 90 per cent. (Tallquist). Whites, 5,300. Differential: polynuclears 57.6 per cent., small mononuclears 37.7 per cent., large mononuclears 3.8 per cent., eosinophils 0.9 per cent. No abnormal cells."

Patient was planning how he could earn more money, and a few days later he entered on a new occupation, which required considerable physical and mental exertion. After a week, his condition had aggravated again; a rather severe gastro-enteritis (*Brechdurchfall*) occurred, a slight exacerbation of the icterus without acholic stools, and fever, rather rapid pulse and severe headache. The blood-curves show the deterioration of his hematopoietic system. A few nucleated red blood-cells appeared and the poikilocytosis increased (see Chart 1). Three weeks afterward he was again improving.

INTERPRETATION OF THE ANAMNESTIC, CLINICAL AND HEMATOLOGIC FINDINGS IN THIS CASE

A man who always had been frail and sickly, without any history of purpura or of hemorrhage, contracted syphilis eight years ago and was treated for it in the usual way. His splenomegaly was recognized two years ago (Dr. Belfield). There is no history of any antecedent marked icterus. The patient's habits readily suggested alcoholic cirrhosis as a primary diagnosis, and a cursory physical examination seemed to confirm it. Repeated, careful blood-counts, however, led to further examinations, and to the recognition of a symptom-complex characteristic of splenic anemia.[1] A brief review of the clinical, pathologic and hematologic data of such cases shows at once the scarcity of diagnostic criteria.[2] Yet on serious reflection it seems to me that the splenomegaly is the central figure in the clinical picture of these anemias, and that the name of Banti's symptom-complex fits the disease better, and emphasizes better Banti's splenogenic[3] theory than any other. By this I mean to accept in their widest meaning Dock and Warthin's,[4] and Warthin's[5] finding of phlebosclerosis, and calcareous degeneration of the splenic and portal veins, which they explain as following a primary thrombosis of these blood-vessels. Theirs is the merit to have called attention to the rôle of splenic and portal phlebosclerosis as an etiologic factor in this symptom-complex, but they fail to suggest an antecedent endophlebitis as the initial lesion in this vicious circle. This seems to me more probably the case, since in the first ten days of typhoid fevers there is an almost identical blood-picture with splenomegaly, and some oligocythemia. The early generalized endothelia-cell hyperplasia, according to Mallory one of the characteristics of typhoid fever

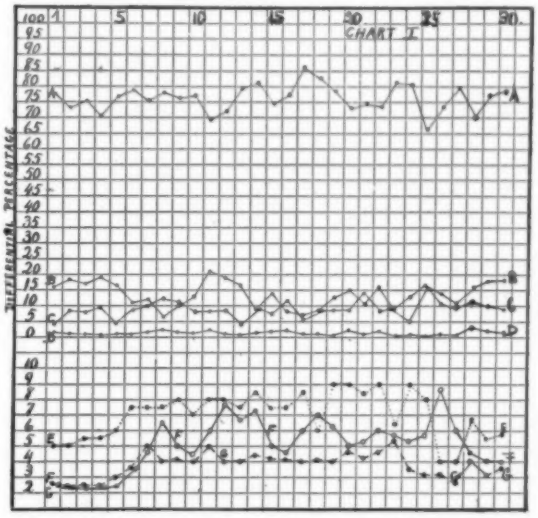

Fig. 1.—Chart showing blood-picture of splenic anemia. Thirty consecutive counts in one case. A indicates polynuclears; B, small mononuclears; C, large mononuclears; D, eosinophils; E, hemoglobin; F, total whites; G, total reds. The column to the left indicates differential percentages. Note (1) the constant parallelism between the curves of hemoglobin, white blood-cells and red blood-cells; (2) the very frequent synchronous movements, and (3) the uniformity of each curve in both charts.

pathology, accounts for the frequent phlebothromboses occurring in these affections. The toxin-laden venous blood irritates the endothelial cells of the walls of the veins, and thus conduces to thrombosis, venous stasis, passive hyperemia, irritation of the reticulum, or stroma, or both, with subsequent disturbance of the splenic functions. The question as to whether in splenic anemia the plastic or the lytic functions of the spleen[6] are

1. Hunter, W. K.: Infantile Splenic Anemia, Lancet, Jan. 23, 1909, p. 226.
2. Aschenheim, E.: Toxic Hemolytic Icterus with Splenomegaly, Folia hematologia, Berlin, Feb. 28, 1911, xi.
3. Grawitz: In Schwalbe's Lehrbuch der Greisen Krankheiten, Berlin, 1909, p. 144.
4. Dock and Warthin: Am. Jour. Med. Sc., 1904, cxxvii, 24.
5. Warthin, A. S.: Relation of Thrombophlebitis of the Portal and Splenic Veins to Splenic Anemia and Banti's Disease, Internat. Clin., 1910, iv, 188.
6. Arneth, J.: Diagnose und Therapie der Anemien, Würzburg, 1905, p. 113.

individually or jointly involved cannot be settled as yet, but the study of the foregoing shows that the curves of the red blood-corpuscles, of the hemoglobin, and of the total leukocytes show distinctly parallel and mostly synchronous movements. This, I can interpret, not as signs of hematolysis, but of a slow or bradyplastic hematopoiesis, as a disturbance of the entire blood-forming system. The splenomegaly is due to an active irritative inflammation of Malpighian bodies and of the stroma. Bradyhematopoiesis is, in my opinion, the underlying hematologic basis of the Banti symptom-complex. It is sluggish production of blood, due to antecedent impoverishment of the blood-forming tissues, especially of the spleen, that we have to deal with here, not an anhematopoiesis as Auburtin[7] thinks. Splenic anemia is not an objectionable term, Naegeli's[8] and others' opinion notwithstanding; it designates a symptom-complex which is more closely akin to pernicious anemia[9] than to leukemia.

The fact that splenic endophlebitis in my case is of luetic nature, as in that of Willy Schmidt's,[10] or of kala-azar spirochetic origin, as in Marchand's case,[11] should in no way prevent us from considering the splenomegalic anemia as a clinical entity, just as a nephritis retains its identity no matter what its etiology may have been. It is hardly probable that splenic anemia may be a dormant leukemia.[12] On the contrary, I believe it to be the last stage of an extinct leukemia, hence its lack of permanent recuperability, and its striking rarity in children. My charts show that at no time during the course of splenic anemia does the blood become normal in all of its ingredients; either the erythrocytes, leukocytes or the hemoglobin are subnormal, singly or together (see charts). Reasoning *a priori*. Banti's disease must be rare in childhood, on account of the resiliency of the hematopoietic system in children. In fact, Weil and Clerc never saw a case of this in a child.[13] The same hematopathic cause would produce in a child an anemia infantum pseudoleukemica of von Jaksch. If, then, the Banti symptom occurs so rarely or not at all in childhood, it is well to add that a von Jaksch anemia in a child is the equivalent of a splenic anemia in the adult for reasons detailed above. It must, however, be kept in mind that a strict clinical or hematologic separation from another of primary blood-diseases is often impossible. Their relation is often close and plainly evident, as can be seen from the following short classification of the generalized primary affections of the hematopoietic system. These I have divided according to their essential hematology, and subdivided according to their etiology and clinical course.

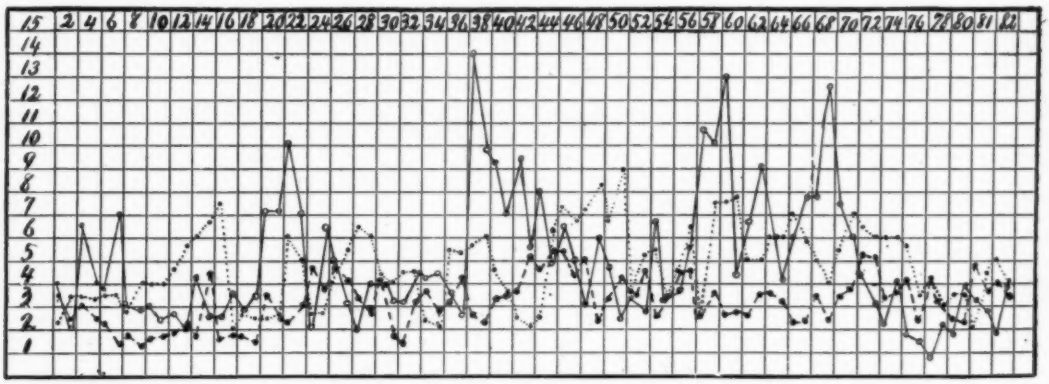

Fig. 2.—Chart showing eighty-two hemoglobin, total red and white counts determined from the literature. Line of small and large solid dots indicates hemoglobin; in percentage units broken line with solid dots, total red blood-cells, in million units; solid line with hollow dots, total white blood-cells, in thousand units. Notice that the blood-picture of Banti's symptom-complex remains pathologic throughout, in one or more of its ingredients.

CLASSIFICATION

1. Polycythemias: With splenomegaly.
   Without splenomegaly.
   a. Idiopathic, primary (Vaquez).
   b. Secondary.

2. Anemias.
   a. Idiopathic, primary, essential (Addison).
   Plastic.
   Hyperplastic.
   Aplastic.
   b. Secondary, pernicious, progressive (Biermer).
   Plastic.
   Hyperplastic.
   Aplastic.

3. Ictero-anemias.
   a. Acquired, hemolytic (Widal).
   b. Congenital (Minkowski-Chauffard).
   c. Congenital,[14] family-type (Gaucher).

4. Splenic anemias (Griesinger).
   a. Primary, splenomegalic or Banti's disease.
   b. Secondary, splenomegalic, kala-azar malarial, syphilitic, etc.
   c. Leukanemia (v. Leube), combining the features of pernicious anemia and leukemia, alternately or conjointly.

5. Pseudoleukemias (Cohnheim) or aleukemias.
   a. Anemia infantile, pseudoleukemic (v. Jaksch).
   b. Lymphatic, idiopathic, pseudoleukemia or Hodgkin's disease.
   c. Secondary, tuberculous, lymphatic pseudo-leukemia or Sternberg's disease.

7. Auburtin, Charles: Les anémies par anhématopoïèse, Semaine méd., March, 1910, p. 337.
8. Naegeli, O.: Diagnostik des Blutes und der Blut-Krankheiten, 1908, p. 395.
9. Hill, R. A. P.: Splenic Anemia and Hemochromatosis, St. Barth. Hosp. Rep., London, 1909, liv, 43.
10. Schmidt, Willy: Banti's Disenses with Heredo-Syphilis, München. med. Wchnschr., March 21, 1911, No. 12.
11. Masuda, Niro: A Case of Banti's Disease, etc., Med. Klin., Jan. 15, 1911, p. 104.
12. Hirschfeld, H.: Banti's Disease, Deutsch. Klin., 1909, p. 324.
13. Weil and Clerc, in Hutinel's Maladies des Enfants, Paris, 1909, p. 411.
14. Brill, Mandelbaum and Libman: Primary Splenomegaly of the Gaucher Type, Am. Jour. Med. Sc., 1909, cxxxvii, 84.

6. Leukemias (Virchow).
   a. Lymphocytic: Small.
   Large, or Rieder form.
   b. Myelocytic.
   c. Polynuclear.
   d. Mixed.
   e. Chloroma: Lymphocytic.
   Myelocytic.

The above classification of primary blood-diseases is intended to give a general comprehensive view of the generic relationship between all of them. It will also show the central position of splenic anemias, between those primary blood-affections involving the erythrocytes exclusively, mainly or partially, and those involving the leukopoietic tissues, such as the leukemias and pseudoleukemia. It is evident that the spleen plays an active rôle here[15] and not a neutral one. In point of frequency, Banti's disease holds a middle place as can be learned from my statistics, from cases seen in consultation or in my private practice from October, 1904, to June 20, 1911. Of thirty-nine cases of primary hematopathic diseases, there were thirteen of pernicious anemia, eight of splenic anemia, eight of leukemia, six of infantile pseudoleukemic anemia (von Jaksch), two cases of acquired hemolytic icterus, one case of Sternberg "peculiar" lymphatic tubercular pseudoleukemia, and one case of leukanemia. About 20 per cent., or eight out of thirty-nine primary blood-affections in my practice were of the Banti symptom-complex.

Its course is of intermittent character, as first observed by Strumpell.[16]

The diagnosis rests on the presence of the splenomegaly, the anemia with leukopenia, and the ascites. Any case with hematologic findings leaning repeatedly toward leukemia should not be included under splenic anemia. The prognosis as to life in Banti's symptom-complex is fair when the blood-picture occupies and retains its central position, but becomes rapidly bad in the proportion as it recedes from its center to one or the other extreme.

The therapy of splenic anemia, to judge from my case, should be conservative, although Sutherland and Burghard, as well as Banti,[17] were in favor of splenectomy. The undoubtedly generic nature of this symptom-complex calls for further study of the mechanism of the various hematopathic findings. The parallelism and synchronicity of the erythrocytic, leukocytic and hemoglobin curves, the absolute fatality of the disease, the intermittent and very chronic course of the affection argue not for an infectious process, but for a cause organic and anatomic in nature, and of unknown origin.

5037 South Ashland Avenue.

Any Old School Will Do.—The following letter sent to a physician connected with a medical school, was published in the *Rush Alumni Association Bulletin:*

Dear Sir:—Pleas send me the names of all the medical colleges in Chicago. I am practicing medicine under the twenty year law that is I had been practicing twenty years when the law was passed for all Dr to hold a deploma only those who had been practicing twenty years. It is not necessary that I should have a deploma but still I would like to have one before I die. I feel like I have some money to spair. My home is in ..... whar men dont accumulate money very fast.

A deploma from any school will do me for I wont practice mouch more I only want it through curiosity and to take back home with me and I trust that you will let me hear from you and any favor you can show me will be appreciated and well paid for.

15. Lewis, M. J.: Splenic Anemia, Splenectomy, Recovery, etc., Am. Jour. Med. Sc., August, 1908, p. 157.
16. Mossler: Pseudoleukemia Splenica, in Ziemssen's Handbuch der speziellen Pathologie und Therapie, 1878, viii, 110.
17. Sutherland and Burghard: Treatment of Splenic Anemia by Splenectomy, Proc. Roy. Soc. of Medicine, January, 1911, iv, 58.

THE PATHOGENESIS OF CARDIAC HYPERTROPHY AND MYOCARDITIS*

LEO LOEB, M.D., AND MOYER S. FLEISHER, M.D.
ST. LOUIS

In several former papers[1] we described a simple method which permitted us with great certainty to produce a combination of hypertrophic and myocarditic changes within a relatively short time in the heart of the rabbit. At the same time we suggested an explanation of these phenomena without, however, going into any detailed discussion regarding the basis for our theoretical conceptions. Inasmuch as it appears to us that the principle underlying our explanation of the phenomena observed in the rabbit may, perhaps, be extended to the pathology of the heart in man, we believe that a somewhat more detailed discussion of our theory might be of advantage.

The method employed by us in the production of hypertrophic and myocarditic changes in the heart of rabbits was, briefly, as follows: We injected into the ear-vein of a rabbit a single small dose of epinephrin (0.2 c.c.) preceded by spartein sulphate or caffein sodium benzoate. We found macroscopic changes in the heart muscle a few days after the injection, which, however, were most marked ten to fourteen days after the injection. Shortly after the injection slight interstitial edema was found in the heart, and somewhat later the muscle fibers showed slight increase in size. Several days after the injection, the muscle fibers were distinctly increased in size and their nuclei were also larger; the connective tissue between the muscle fibers was increased in quantity.

In the next few days the changes became more pronounced. The separation of the muscle fibers due to edema was now marked. In places we found degenerative changes in the muscle fibers; some of the fibers appeared to have been dissolved, only a thin ring of muscle substance surrounding the nucleus; the striations were now indistinct in the fibers.

About two weeks after the injection the changes had reached their maximum. The connective tissue increase was diffuse. The degenerative changes in the muscle proper had become more extensive. Besides a larger number of the muscle fibers and their nuclei were increased in size, and frequently double nuclei were seen in the muscle cells.

From this period onward the changes became less marked, both macroscopically and microscopically. The hypertrophy of the muscle fibers and muscle nuclei gradually disappeared; the degenerative changes were no longer apparent. Finally, twenty weeks after the injection, small islands of fibrous tissue which had supplanted the degenerated muscle fibers were the only remaining evidences of the hypertrophy of the heart and myocarditis.

The explanation which we offered was based on certain experiments carried out on striated muscle by several investigators.

Ranke,[2] who studied the influence of tetanic contraction on muscles, found that muscles tetanized by either strychnin or a galvanic current showed an increased content of water. This larger percentage of

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

* From the Department of Pathology of the Barnard Free Skin and Cancer Hospital.

1. Fleisher and Loeb: Arch. Int. Med., February, 1909; 1910, vi, 427; Centralbl. f. Path., 1909, xx, 104; THE JOURNAL A. M. A., 1909, liii, 1561.
2. Ranke: Tetanus, Leipsic, 1865.

water he considered to be due to increased imbibition and decreased resistance to the passage of water into the muscle. This change in the water content of the muscle was supposed to be due to an increase in dissociated products within the cells caused by the activity of the muscle.

Cooke[3] later found that in tetanized muscles, in muscles fatigued by carrying a load, or even muscles which had been exposed to a single electric shock, the osmotic pressure was increased, such muscles taking up water from a solution hypertonic to normal resting muscles. This author further showed that this increase in osmotic pressure was not due to the electric stimulation as such, nor was the taking up of water due to the stretching of the interstitial spaces.

Fletcher[4] obtained results which, in the main, were similar to those of Cooke. He found that fatigue increased the osmotic pressure of muscles, but his findings differed from those of Cooke, as far as the subsequent curve representing the movement of water into the muscle and the influence of various strengths of solutions on the rate at which fluid was taken up were concerned.

In regard to the principal fact, namely, the taking up of water by fatigued muscles, and in regard to the increased osmotic pressure of fatigued muscles, the three authors mentioned were in agreement. On the basis of these facts and other observations which had proved that the growth of plant cells depends on an increase in turgor, and that also the growth of cells in lower animals depends on an increased taking up of water, J. Loeb[5] explained the hypertrophy of muscles resulting from increased work as due to the taking up of water following catabolic processes in the muscle leading to an increase in osmotic pressure. He also suggested that hypertrophy under pathologic conditions, in which no increased activity had preceded the hypertrophy, might be explained in a similar manner.

We assumed that as a result of the excessive work done by the heart muscle following the injection, the osmotic pressure of the muscle and consequently the movement of water into the muscle fibers was increased. After the period immediately following the injection, the conditions in the experiments performed with striated muscles *in vitro* differ from the conditions prevailing in our experiment. In the former case, the muscle was kept *in vitro* under abnormal conditions and the fatigued muscle no longer performed any work. In our experiments the muscle remained in the body, was perfused with normal blood and continued to perform work. These differences might explain the further changes found in our experiments.

We must assume that the continued work of a muscle that has taken up an abnormal amount of water may lead to further taking up of water and to processes of vacuolization and solution in some muscle fibers. This excessive effect may, therefore, lead to degenerative changes. The primary interstitial edema and perhaps the stretching of connective tissue fibers may lead to the early increase of interstitial tissue, which we found—the later increase in connective tissue being secondary to the parenchymatous changes in the muscle fibers. The increase in connective tissue and consequent shrinking of the fibrous tissue causes pressure on the muscle fibers and may thus lead to secondary parenchymatous changes in the latter.

3. Cooke: Jour. Physiol., 1898, xxiii, 137.
4. Fletcher: Jour. Physiol., 1904, xxx, 414.
5. Loeb, J.: Arch. f. d. ges. Physiol., 1894, 106, 270.

Before we proceed further, let us consider in what other way it might be possible to explain the facts observed by us experimentally. First, it might be assumed that epinephrin causes changes in the heart, not through its action on the heart muscle, but by causing a contraction of the coronary vessels, thus indirectly interfering with the nourishment of the myocardium. Some facts might be cited in favor of such an interpretation. In the first place, it is well known that epinephrin causes a constriction of small arteries. It is also an established fact that a partial or complete occlusion of the coronary vessels produces degenerative and fibrous changes in the heart muscle. Plausible as this explanation may appear, it does not seem to us to be tenable. In the first place, the experimental evidence points very strongly to the conclusion that epinephrin does not cause a constriction of the coronary vessels.

Schaefer,[6] who studied the outflow of blood from the coronaries, was unable to demonstrate any influence of epinephrin on these vessels. Langendorff[7] found that this drug caused dilatation of cut-out strips of the coronary vessels of sheep and his results were confirmed by Pal;[8] DeBonnis and Susanna[9] also confirmed these results. They found dilatation of strips of coronary vessels in the majority of their experiments, in a few experiments, however, no influence of epinephrin being evident. Wiggers,[10] who studied the rate of outflow of blood from the coronaries in the resting heart, concluded that epinephrin caused contraction of the coronary vessels. Bond[11] and Campbell,[12] however, have been unable to demonstrate a constricting influence of this drug on the coronary vessels.

In view of the results of the large majority of these investigators, it is very probable that epinephrin does not cause a constriction of the coronary vessels, and that accordingly, it cannot interfere with the nutrition of the cardiac musculature.

We may, therefore, conclude that epinephrin does not cause a constriction of the coronary vessels, and that there exists no basis for the assumption that epinephrin produces myocarditis through its action on the coronary vessels. There are other facts which likewise seem to us to preclude such an interpretation. In the first place, whenever myocarditic lesions exist as a result of occlusion of the coronaries, the region near the apex is affected much more frequently than the base, while the lesions caused by epinephrin are almost exclusively found at the base of the ventricle.

Furthermore, the character of the lesion does not seem to us to be compatible with such an origin. After an acute occlusion of the coronary arteries infarct-like changes are found; at a later period fibrous tissue takes the place of the injury; while in our experiments the primary changes consisted in an increase in volume of the fibers and in the number of muscle nuclei accompanied by an increase of connective tissue.

A direct toxic action of epinephrin on the heart muscle has also to be considered as a possible explanation, especially as it is very probable that the necroses found in the media of the aorta after numerous injections of epinephrin are due to a direct toxic action on the media of the vessel, and, indeed, one of us[13] upheld such an

6. Schaefer: Arch. d. sc. Biol., Suppl. Festschr. f. Pawlow, 1904, 251; Centralbl. f. Physiol., 1904, xviii, 817.
7. Langendorff: Centralbl. f. Physiol., 1907, xxi, 551.
8. Pal: Wien. med. Wchnschr., 1909, 109, p. 138.
9. DeBonnis and Susanna: Centralbl. f. Physiol., 1909, xxxiii, 139.
10. Wiggers: Am. Jour. Physiol., 1909, xxiv, 391.
11. Bond: Jour. Exper. Med., 1910, xii, 575.
12. Campbell: Quart. Jour. Exper. Physiol., 1911, iv, 1.
13. Loeb and Githens: Am. Jour. Med. Sc., 1905, cxxx, 658

interpretation on a former occasion. Especially might such an interpretation appeal to us in cases in which, after repeated injections of epinephrin, degenerative changes are found both in the aorta and heart. Here it might be held that a toxic action has been exerted on both organs. Nevertheless, it seems to us that this explanation is not applicable in the case of our experiments, in which, after one single injection of epinephrin, marked changes were found in the heart muscle.

Again, the situation of the lesion at a place where the muscle fibers are exposed to the greatest strain after injection of epinephrin, as well as the character of the lesion in which degenerative processes in the parenchyma are not the principal changes, seem to us to make such an explanation unsatisfactory, although we do not wish to exclude a direct toxic action of epinephrin as a contributing factor. It seems to us, therefore, that in the case of the experimental lesions of the rabbit, the theory advanced by us is the most satisfactory.

We conclude, then, that mechanical strain with its physico-chemical sequels is responsible for both the cardiac hypertrophy and myocarditic changes in the rabbit's heart.

Let us now briefly consider how far our observations and theoretical considerations are applicable to certain pathologic conditions found in man. Here, also, we find a combination of hypertrophy of the heart muscle and interstitial changes, especially increase in connective tissue in a similar manner as in the experimental lesions of the rabbit. Sometimes, the hypertrophy represents by far the more important change; at other times, the connective tissue increase is quite marked. Accordingly, these conditions are designated as hypertrophy of the heart muscle and as chronic myocarditis. In most cases, a combination seems to be present, and it is doubtful whether a sharp division between these two conditions can be maintained.

The same combination of changes is found in the experimental lesions of the heart of the rabbit. Here are noted, just as in the human heart, certain nodular areas of connective tissue overgrowth, especially at somewhat later stages, at a time when the acute lesions have retrogressed to a great extent. In the rabbit's heart we find this condition as the result of strain. The same holds good, to a great extent, in the case of the human heart. We find these changes in persons in whom the heart has to do excessive work in order to overcome increased resistance as in cases of valvular lesions, arteriosclerosis, kidney lesions. It is also possible that in cases in which, under the influence of bacterial or non-bacterial poisons, apparently a dilatation of the heart is primary, the subsequent hypertrophic and myocarditic changes owe their origin to the increase in work to which such hearts are subject in consequence of the dilatation.

There exist, however, some differences between the conditions found in the rabbit's heart and in hypertrophy and myocarditis in man. In the former, the parenchymatous degenerative changes in the muscle cells are more prominent than in the latter. This difference is, perhaps, due to the acuteness of the change in the heart and to the excessive strain, extending over a brief period only in the rabbit, while in man the strain is more chronic, extending over a long period and is usually less at any given time. In the latter we might, therefore, expect the hypertrophic and interstitial changes to prevail. We have, however, seen that also in the case of the rabbit the degenerative parenchymatous changes disappear relatively rapidly, leaving merely some fibrous bands. We may, therefore, assume that in man degenerative parenchymatous changes which perhaps existed at given times—and such changes are occasionally found in cases of hypertrophy—will heal within a brief period of time, leaving behind fibrous nodular bands.

Some pathologists ascribe the cardiac hypertrophy proper to the increased strain, while they interpret the interstitial changes as invariably due to the malnutrition of the muscle, caused by partial or complete occlusion of the coronary vessels. We have shown that in the case of the rabbit's heart in which changes are found similar to those in the human heart, the occlusion of the coronary vessels cannot be held responsible for the myocarditic changes. There we have a uniform cause leading to both hypertrophy and myocarditis. It seems to us that these facts suggest a similar uniform pathogenesis in many cases in which hypertrophy of the heart and myocarditis are combined in man. This, of course, does not exclude the possibility that in other cases partial occlusion of the coronary vessels is responsible for myocarditic changes, nor does it exclude the possibility that toxic substances may likewise cause myocarditic changes.

We believe that attention ought to be drawn to the similarity existing between the experimental lesions in the rabbit's heart and a large class of lesions found in the human heart, and that a similar pathogenesis may be suggested for both sets of conditions, the cardiac hypertrophy and the myocarditic changes.

DIFFUSE SEPTIC PERITONITIS FROM APPENDICITIS

STATISTICS OF 194 CASES

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To November, 1910, there came under my care 194 patients with diffuse septic peritonitis from appendicitis of whom 138 recovered, a recovery percentage of 71, and fifty-six died, a mortality percentage of 29. In this series there were at times as many as fifteen consecutive cases without a death. All patients were operated on except six who were actually moribund. An attempt has been made through a study of the 188 cases with operations to reach some conclusion as to the value of the different methods of treatment in diffuse septic peritonitis following appendicitis. It is interesting to note that in eighty-three cases in which treatment consisted of the administration of fluids by mouth, saline enemas every three or hour hours, with the Fowler position, sixty patients recovered, a recovery percentage of 72.3, and twenty-three patients died, a mortality percentage of 27.7. In a series of thirty-nine patients treated by the elevated head and trunk position, the administration of fluids by mouth and nothing by rectum, thirty patients recovered, a recovery percentage of 76.9, and nine died, a mortality percentage of 23.1. Combining the statistics in these two series we have a series of 112 cases in which the elevated head and trunk position was used and fluids were given by mouth; eighty-three of the patients received enemas and thirty-nine nothing by rectum. Of these patients thirty-two died, showing a recovery percentage of 72. Comparing these three sets of figures it would seem that the administration of fluids by rectum had little if any influence on the after-course.

In fifty-eight cases in which the so-called ideal treatment was employed, that is, the Fowler position, nothing by mouth and Murphy proctoclysis, thirty-nine patients recovered, a recovery percentage of 65.5, and nineteen died, a mortality percentage of 34.5. Comparing the cases (in all of which the patients were treated by the elevated head and trunk position) in which nothing was given by mouth and those in which fluids were administered irrespective of what the rectal treatment was, there were seventy-two patients who had nothing by mouth, of whom forty-eight recovered, a recovery percentage of 66⅔, while of 122 patients who were given fluids ninety recovered, a recovery percentage of 73.5.

Statistics, if valuable at all, are only valuable when a large number of cases treated along certain lines are considered. These cases were all cases of diffuse septic peritonitis from appendicitis in which on opening the abdomen there was an immediate spurt of pus under tension, not from a localized abscess, but from a general diffusion of the infected fluid. The patients were sick for variable lengths of time. There is but one certain conclusion that can be drawn from the consideration of these cases, and that is that the mortality is much less than was the case before the elevated head and trunk position was employed. As regards additions to this treatment, such as the withholding of all nourishment by mouth or the giving of saline per rectum, these statistics would seem to show that such additions to the original treatment are immaterial. Yet in spite of this apparently logical conclusion I believe that the ideal treatment, i. e., the Fowler position, the keeping of the stomach empty by withholding all nourishment, or if the stomach fills through retroperistalsis, by lavage with siphoning dry of the stomach, and the administration of saline by the Murphy method of proctoclysis, should be carried out in the majority of cases. In addition I would suggest that a culture be taken at each operation and a vaccine be immediately prepared and given. In two cases recently in which this was done both showing infection by colon bacillus the results seemed to be better than in cases not so treated. This, of course, will require further confirmation. It can be stated with certainty, however, that the result does not depend on the treatment, except that the elevated head and trunk posture has proved efficacious, but to a great extent on the virulence of the infection and the period of time it has been at work.

The element of time plays the most important rôle and is the chief reason why statistics vary when apparently the same method of treatment has been carried out, though the virulence of the infection must also be considered.

In this series of 188 cases of operation in which the duration of the attacks was made a matter of record the following table has been compiled showing the recovery percentage in relation to the duration of the attack. The first column of percentages indicates the recovery percentage in all cases up to the end of the period marked in the first column of the table; the second column of percentages shows the recovery percentage for patients operated on in the period indicated in the first column of the table, i. e., in the first forty-eight hours, eighty-five patients were operated on, fifteen of these in the first twenty-four-hours period, showing a recovery percentage of over 81, while the omission of these fifteen cases gives a recovery percentage of over 77 for those patients operated on in the second twenty-four hours.

RECOVERY IN CASES CLASSIFIED ACCORDING TO PERIOD OF OPERATION

Period of Operation	Number of Cases	Recovered	Recovery % in All Cases	Recovery % for the Period
24 hours	15	15		100
48 hours	85	69	81+	77+
72 hours	122	98	78+	72+
96 hours	153	117	76+	67+
120 hours	174	126	72+	42+
144 hours	177	128	72+	66+
1 week	181	130	71+	50
8 days	182	131	71+	100
10 days	183	131	71+	0
12 days	184	131	71+	0
2 weeks	187	133	71+	66+
3 weeks	188	133	70+	0

301 DeKalb Avenue.

A SOURCE OF ERROR IN THE TEST FOR OCCULT BLOOD IN THE FECES *

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Since the recognition of the frequent occurrence of duodenal and gastric ulceration and the subsequent change in many of our views concerning what was formerly referred to as "gastric" and "intestinal" indigestion, the test for occult blood in the feces is more commonly used and has proved its value in aiding to differentiate various digestive disorders. Owing to the prevailing custom of using either the turpentine-guaic or the peroxid-of-hydrogen-guaic test for the presence of occult blood, it seems of importance to point out any possible and probable source of error in the interpretation of the color reaction as found in the chemical examination for blood in the feces.

It is well known that the ingestion of bloody meat, of iron as a medicine and of certain starchy foods will sometimes give a slight color reaction when testing for occult blood, but I have never read or heard mentioned a source of error that I recently discovered. During the examination of a patient suspected of having a duodenal ulcer, the patient made the statement that he was passing blood by the bowel. There was but slight evidence of any local bowel irritation and little in the patient's history to point to the presence of a duodenal ulcer. A specimen of the feces was obtained and superficially it did appear that there was blood mixed with the stool. The guaic-turpentine test gave a deep blue color, but a microscopic examination of the liquid feces failed to reveal any blood-cells although the deepness of the color reaction in the chemical test indicated a quantity of blood. A careful microscopic examination of the feces revealed the presence of minute portions of material that resembled blood but which proved to be watermelon pulp.

It then occurred to me that the coloring matter of the melon pulp might give the characteristic chemical test for blood and an experiment proved this to be true. It was also found that the expressed juice of the melon gave a similar color reaction but in the latter experiment the color did not prove to be so dark a blue as when the pulp of the melon was used.

As watermelon is so common an article of food during the heated season, there must be many persons, both invalids as well as healthy individuals, who, if their feces were subjected to a chemical test for blood, would give a definite blue-color reaction because of the coloring matter of this fruit.

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* From the laboratories of the Out-Patient Department, Jefferson Medical College.

DEEP PERINEURAL INJECTIONS OF BETA-EUCAIN SOLUTIONS IN SCIATICA

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MILWAUKEE, WIS.

It is not my wish, in reporting these few cases, to claim any originality in the treatment of sciatica with beta-eucain solutions, as a complete report of similar cases has been made by D'Orsay Hecht.[1] Also J. Lange[2] reports marvelous results in eleven cases, and it was his method that I followed as closely as possible in the few cases that I have to report. The technic which was used in the first case reported below was used in all the following cases, so I shall avoid repetition.

CASE 1.—Jan. 10, 1906, I was called to J. D., an Austrian laborer, aged 28; he said he had been suffering from sciatica for about six months. When first seen he was unable to walk; he had been bedridden for two months. I had him removed to Trinity Hospital and, with Dr. Arthur Hoyer, who was then intern, injected 100 c.c. of a solution, made by dissolving 2¼ gr. of beta-eucain in 100 c.c. of normal salt solution. The injection was made—after rendering the parts aseptic—at the gluteal fold, midway between the tuberosity of the ischium and the great trochanter, using a large 50 c.c. syringe and a good, stout needle about 3 inches in length. The needle was passed upward and slightly inward, and on depositing a few drops of the solution the parts became deadened to the pain of the needle on its way to the great sciatic nerve. As the point of the needle reached the nerve there was a distinct shudder or twitch of the leg, indicating that we were in the right path, also there was resistance to the point of the needle as it passed through the outer sheath of the nerve. Then we deposited slowly the contents of the syringe, after which we unscrewed the barrel from the needle and, leaving the needle *in situ*, refilled the barrel, attached it again to the needle and deposited the other 50 c.c.

The result was surprising; the patient, who had been in bed for two months, afraid to move for fear of the excruciating pain accompanying motion, rose from the operating table and walked in a sprightly manner from the fifth floor to the third floor of the hospital. He did not go back to bed again but walked around the ward with the other convalescent patients; but after three days he began to complain of pain in the calf of the leg again. Five days after the first treatment, we repeated the treatment with the same good result. He left the hospital a few days after the last treatment and reported to me twice a week for nearly two months. I have seen him at different intervals since and he has had no return of his sciatica.

I have been able to get only five other patients to submit to the treatment, three of whom were cured, or have had no return of sciatica for a year following the treatment, nor up to the present, as far as I know. The two remaining patients were benefited at the time, but would not submit to a second injection. In all the cases here reported the patients had been suffering from one week to six months.

CASE 2.—Adam M., aged 29, tanner, suffering from sciatica for five weeks; two weeks in bed. Feb. 20, 1907, I injected 100 c.c. of beta-eucain, solution 1 to 1,000, into great sciatic nerve. Relief was instantaneous and patient got out of bed the same day; relapse set in about two weeks later. I repeated the treatment with resulting cure.

CASE 3.—W. T., colored waiter, aged 48. March 15, 1908, injected 100 c.c. of the solution, as described, into sciatica nerve. The patient was relieved of the pain instantaneously, but did not have the use of the left leg for about three days. After considerable massage he was able to move around. This case alarmed me for a while, as I thought the patient had developed paralysis after the injection. His pain returned when he recovered the use of his leg. I repeated the treatment and while he complained for a time of being "weak" in the left leg, he had no return of the sciatica. I have seen him a number of times since and he has had no trouble with his legs.

CASE 4.—A. G., aged 42, laborer; lived in a very cold house; slept between two feather beds. I was called to this patient Feb. 20, 1910, and found him with an acute case of sciatica. I used the injection on him Feb. 21, and was obliged to repeat at weekly intervals four times before I got a cure. He would get relief for two or three days, but the pain would return. I also had to resort to the hypodermic several times in this case.

CASE 5.—H. H., brewery hand, aged about 40; called at my office, Nov. 20, 1910, with sciatica of two months' standing. I injected 100 c.c. solution beta-eucain; the patient stated that his pain was relieved instantly. He left the office and I have not seen him since; I do not know if he had any return or not.

CASE 6.—P. O., laborer, called at the office, March 16, 1911, suffering from sciatica. I used 100 c.c. beta-eucain solution. He obtained some relief, but returned March 21, saying that he was worse than ever. He refused a second injection and asked for medicine. I gave him aspirin and codein, but have not heard of him since.

I believe, with Dr. M. R. Barker, that sciatica is at first a neuralgia, but later becomes a neuritis, with adhesions between the nerve-sheath and the nerve-substance; this brings about a contraction and thickening of the nerve-sheath; so when a large quantity of solution is forced into the nerve there is an expansion of the sheath and a breaking up of the adhesions. In addition, we have the anesthetic effect of the beta-eucain.

1. Hecht, D'Orsay: THE JOURNAL A. M. A., Feb. 6, 1909, p. 444.
2. Lange, J.: München. med. Wchnschr., Dec. 27, 1904

A NEW TONSIL HEMOSTAT

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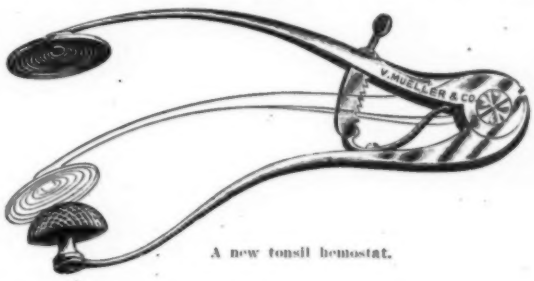
The free hemorrhage that occurs in tonsillectomy under general anesthesia suggests the routine use of mechanical hemostasis, as logically indicated to prevent



A new tonsil hemostat.

needless loss of blood in all cases and to secure a nearly bloodless field while the second gland and the adenoid are excised.

The accompanying illustration shows a tonsil hemostat which I have devised and found most satisfactory in every respect after experimenting with several instruments already on the market. This contrivance is best used in pairs, though each instrument is applied on either side of the throat with equal facility. Several layers of gauze are attached to the bulbous extremity of the inner arm; the outside arm carries a disk for counter pressure. The spring ratchet makes adjustment easy for removal or for inserting the instrument, and when both hemostats are in place, excision of the adenoids is not interfered with because the arms are formed to follow the buccal curve. Removal of these instruments one at a time enables the operator to handle any persistent hemorrhage that may follow, by use of long hemostatic forceps for torsion or ligation when needful.

A NEW CONCEPTION OF IMMUNITY

ITS APPLICATION TO THE CULTIVATION OF PROTOZOA AND BACTERIA FROM THE BLOOD AND TO THERAPEUTIC MEASURES *

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Lysis of protoplasm, either protozoal or bacterial, by the body fluids depends on two substances: (1) amboceptor, which is generally specific, but may sometimes be common, and (2) complement, which is common with reference to antigen, but is more or less specific with reference to the source of amboceptor. This complement in man's serum is more active with specific amboceptors in man's serum than with specific amboceptors in the serum of other animals.

When a foreign protoplasmic substance, protozoal or bacterial, is introduced into the tissues of man, specific amboceptors develop and may be demonstrated in the body fluids, especially in the blood-serum. These amboceptors are capable of dissolving large quantities of the same kind of protoplasm in the presence of sufficient complement, but are inactive in the absence of complement. Amboceptors are not destroyed by moderate heat (56 C) or by considerable age.

Complement acts with specific amboceptors to dissolve and destroy large quantities of protoplasm in the presence of specific amboceptors against the particular protoplasm, but it is inactive in the absence of such amboceptors. Human complement capable of acting with human amboceptor to produce lysis, though generally supposed to require at least moderate heat to inactivate or destroy it, as a matter of fact is destroyed by any temperature above normal body temperature (37 C) and with a rapidity depending on the temperature. A temperature at 40 C. (104 F.) destroys the complement in human serum in from fifteen to thirty minutes, and prevents lysis regardless of the amount of amboceptor employed.

Freshly drawn human blood contains little or no complement capable of acting with human amboceptors, but under favorable conditions it develops at a variable rate and in varying quantities depending especially on the temperature at which the blood is kept. The most favorable temperature is considerably below body temperature. No human specific complement develops at ordinary fever heat, 38 to 40 C. (101 to 104 F.), such as obtains locally and often generally in most inflammations. Bacteriolysis or protozoalysis, by far the most important of the known protective processes of the body fluids of man through which the specific infecting organism should be destroyed, is thus prevented by the local or general temperature regardless of the amount of amboceptor present.

In the event that human complement has developed in a blood (which it does under favorable conditions within a few hours), it increases in amount for a time. Then it again disappears in from thirty to seventy-two hours according to various conditions.

When an individual is infected with the malarial plasmodium, *Spirochæta pallida*, the bacillus of typhoid, etc., his blood soon contains large amounts of amboceptor against the infecting organism. If such blood is drawn and employed as a blood-culture in the usual manner and at a temperature at or below 37 C., complement develops within a few hours and acting with the specific amboceptor destroys the organism and prevents successful cultivation. This is the explanation for the many negative typhoid blood-cultures in the latter part of the disease when much amboceptor is present, while cultures in the first few days are generally successful. This may be obviated to some extent by employing special media like bile, which prevents the development of complement. The same result can be obtained by placing the culture immediately at a temperature that will prevent the formation of complement and yet not high enough to destroy the organism. Theoretically and practically, so far as my experiments indicate, blood-cultures will be positive at any time when the organism is present in the blood.

Applying the principles set forth above I have been able to keep alive and to cultivate without difficulty the three common forms of malarial plasmodia—*Plasmodium vivax, Plasmodium malariæ* and *Plasmodium falciparum*. They have been repeatedly transplanted successfully. Up to the present writing, cultures have lived in citrated blood for over two weeks. The viability of my cultures has been confirmed by a number of my confrères here.

It is my opinion that the other blood-inhabiting protozoa and bacteria may be grown without difficulty provided these principles are followed and appropriate technic is employed. In the case of malarial plasmodia a special technic, apparently necessary, is that strict anaerobic conditions must be maintained throughout. This, however, is no doubt essential for the satisfactory cultivation of most pathogenic protozoa. Citrated or defibrinated blood is the most successful medium I have found for the cultivation of malarial parasites.

Applying this theory to therapeutic measures we have reversed conditions and we then desire to favor the formation and activity of complement. We may take as a favorable illustration an ordinary infected abscess. As a result of the bacterial toxin, inflammation ensues with its accompanying hyperemia and swelling due to exudation of serum and usually leukocytes. The latter engulf the bacteria but are unable to destroy them for lack of complement, which cannot develop because of the local elevation of temperature.

Finally, sufficient necrosis occurs to give rise to a macroscopic cavity filled with pus. This may continue to increase in amount and the bacteria live and multiply in it. If such pus is withdrawn and some normal serum rich in complement is added it promptly becomes sterile, provided the matter is in sufficiently fine division so that the complement supplied and amboceptor already present in the pus can reach all the bacteria present. If the pus contains some serum that has recently exuded from the tissues and if it is placed at proper temperature, complement develops and can be demonstrated by appropriate test. If on the other hand the pus has been in the cavity many days and at high temperature it will have passed the age at which it can develop complement under any condition. If such old pus is withdrawn and the cavity allowed to refill with new pus fresh from the living tissues, and provided the temperature is kept below the inactivating temperature for human complement, then large amounts of complement develop and the bacteria are destroyed by the combined action of amboceptor and complement. Such new pus withdrawn and kept at appropriate temperature

* Study 3, from the Laboratory of Tropical Medicine and Hygiene, under the direction of Dr. Creighton Wellman, Tulane University of Louisiana.

develops an enormous amount of complement—in fact much more than would an equal amount of blood—probably because of the increased number of leukocytes, the probable source of complement.

It should be stated here that complement will develop at quite low temperatures, but that the activity of human amboceptor and complement is much reduced at a temperature of 23 C. (73 F.) or less. Thus the very process it is desired to favor may be materially interfered with by too much cold.

We seem to have herein an explanation for the good derived from cold applications to inflammations, even to the effect of high and incidentally cool climates in tuberculosis of the lungs. The temperature of the diseased foci is lowered by the constant inhalation of cold air.

The possibilities along the lines suggested are so great and the work necessary for the evolution of technic adapted to each of the many problems, both cultural and therapeutic, that will be suggested from time to time and in which this theory plays a part so extensive that one worker will be unable to do any considerable part, and I therefore hope that others will take up this line of experimentation and confirm or contradict the opinions here expressed.

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ABSENCE OF APPENDIX

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History.—Miss X., aged 22, has for the past three years suffered from attacks of nausea after meals with occasional vomiting spells; at times the nausea has existed irrespective of the ingestion of food. Associated with this condition she has had epigastric pain and obstinate constipation. Menstruation has been painful since its inception. She has been treated for the above conditions by several able physicians who have tried all the usual antidyspeptic remedies without avail. Symptoms and signs included slight epigastric pain on deep pressure; distinct pain over the region of the appendix on pressure. A diagnosis of chronic appendicitis with epigastric symptoms and constipation preponderating.

Operation.—Numerous adhesions in the region of the caput cecum were at once encountered, i. e., between the cecum, colon, and right lateral parietal peritoneum; between the small intestine and the large bowel, especially in the region of the ileocecal juncture. These adhesions extended well up the ascending colon; they were freely broken down, necessitating suture of the intestinal peritoneum at several points. The anterior band of the colon was followed to the usual seat of the appendix, but no appendix was found. The case was thought to be one of unusual location of the organ, or of adhesions hiding it; the search was therefore continued in a most sweeping way, the mesocolon was split, and the retrocolonic space searched for a distance of 4 inches above the caput cecum; the ascending colon and the transverse colon were followed as far as the splenic flexure, the sigmoid flexure was examined, and still no sign of an appendix; there were no diverticula; the right tube and ovary were involved in the adhesions. An hour had passed, and since it was felt that the search had been a complete one, the wound was closed.

For years I have taught that the failure to find the appendix was the fault of the operator, and that a careful search, backed by anatomic knowledge and experience, would in all cases discover it. I still hold that, in the very large majority of cases, this is true. I am constrained to admit that, in this case, however, after many hundreds of operations, I have met with an actual case of congenital absence of the appendix vermiformis. During the operation I had in mind the possibility of the organ being obliterated by former inflammation causing a fibroid degeneration, and its place taken by cicatrical tissue, a condition sometimes called fibrosis; of this there was no evidence. The operation, to date, has relieved the patient of all of her symptoms. This is no doubt due to the relief of the drag of the adhesions caused by an old perityphlitis.

80 Madison Avenue.

STRANGULATED PEDUNCULATED SUBSEROUS FIBROID COMPLICATING PREGNANCY AT FOUR AND ONE-HALF MONTHS

OPERATION, RECOVERY WITH DELIVERY OF CHILD AT TERM *

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LOS ANGELES

The coexistence of fibroids of the uterus and pregnancy was formerly considered to be a rarity. By some, the occurrence of fibroids was thought to be an expression of disappointed destiny on the part of the uterus, a morbid activity of a functionally inactive organ. Again, the sterility was looked on as the result of the presence of the fibroids. One author, Carstens,[1] explains the early sterility and late impregnation as being due to a correction of a malposition of the uterus by the developing fibroids, thus allowing conception to take place. The coexistence of these two conditions, fibroids and pregnancy, is not so rare as was formerly supposed, as one finds quite an abundance of these cases reported in the past few years. So, that while functionally inactive uteri may have a greater tendency to fibroid development it would seem that the presence of the fibroid, unless it be of the submucous variety, is not, *per se*, antagonistic to the occurrence of conception. C. P. Noble[2] in an exhaustive article on the complications and degenerations of fibroids with a review of some 7,000 cases, refers to the effect of pregnancy and labor on the tumors, and the possibility of such accidents as "twisted pedicle, necrosis and infection of the tumor," occurring. Mann[3] reports ten cases of pregnancy associated with fibroid and quotes Pinard's report in 1905, of eighty-four fibroids in 13,917 labors and Stratz's report from Schroeder's clinic of 20,000 cases of pregnancy in which there were twelve operated on because of fibroid complication.

In discussing the accidents which might occur in a case of pregnancy and fibroid, Mann says:

> Three conditions must be differentiated: bursting of a pus tube, necrosis of a tumor and twisting of a pedicle. Necrosis generally occurs post abortum or post partum, but occasionally is met with in pregnancy. Twisting of a pedicle of a fibroid is certainly rare and must be extremely so in connection with pregnancy. I have met with two cases of twisting of the pedicle of the fibroid but in neither case was pregnancy possible.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Carstens, J. H.: Fibroid Tumors Complicating Pregnancy. A Short History and Report of All Recorded Cases up to January, 1908, Am. Jour. Obst., March, 1909.
2. Noble, C. P.: Fibroid Tumors of the Uterus, THE JOURNAL A. M. A., Dec. 8, 1906, p. 1881.
3. Mann, M. D.: Fibroid Tumors of the Uterus in Pregnancy, Labor and Puerperal State, Am. Jour. Obst., June, 1907.

Schauta,[4] in a thorough study of the records of his obstetric and gynecologic clinics from 1891 to 1908, reviews some 111,000 cases in which the coexistence of pregnancy and fibroids occurred in the proportion of seven to ten thousand. In 60 per cent. of the cases of advanced pregnancy, the delivery was normal; in only two cases was interference necessary because of mechanical difficulties. From these various reports and from the fact that the vast majority of cases of pregnancy complicated by fibroids go to term without any accident happening so that they remain unrecognized and unreported, it would appear that the existence of the fibroids is not so inimical to conception as has been supposed. The coexistence of the two conditions, therefore, has ceased to be of interest as a pathologic rarity, but has taken on a very great practical interest from the accidents which may occur in these cases during the course of pregnancy, labor and the puerperal period.

The effect of the presence of the fibroids on the course of pregnancy, once it has occurred, varies with the number, kind and location of the fibroids. Submucous fibroids and deep-seated intramural fibroids by their effect on the endometrium may cause early abortion, placenta prævia or adherent placenta. Noble has reported some cases of tubal pregnancy which were apparently caused by a pressure of a fibroid on the opening of the tube, thus preventing the entrance of the ovum into the uterus. The labor and the puerperal period may be very markedly and deleteriously affected by the presence of the tumor. Fibroids in the lower uterine segment or pedunculated growths from the corpus hanging down into the true pelvis may either so obstruct the entrance to the pelvis as to make the delivery mechanically impossible or cause such a malposition of the presenting part as to make it very difficult. Retention of the placenta and post-partum hemorrhage are also much more common than ordinary, the former because of the changes in the endometrium and the latter because of interference with proper contraction and retraction of the uterine muscle by the presence of the fibroid in the uterine wall. The puerperium may also be complicated by the occurrence of necrosis of the fibroid and sepsis due to the pressure to which the tumor has been subjected during the delivery; this being especially liable to occur in those cases in which forceps delivery has been done. Mumford[5] reports a case of post-partum infection of a fibroid with peritonitis and recovery after hysterectomy.

The effects of the pregnancy on the fibroid are usually the cause of operative interference during pregnancy. These tumors rapidly increase in size during pregnancy, the increase being due to actual growth rather than to edema according to Mann; while Schauta and a number of others ascribe the increase in size rather to the edema. By pressure symptoms, these rapidly growing tumors may demand operative interference before the presence of the pregnancy is suspected.

Quite a number of cases are reported in which operation was performed for multiple fibroids and the pregnancy only discovered at the time of operation. An interesting case is reported by Spaeth,[6] who operated with a diagnosis of torsion of a pedunculated tumor and found an interstitial fibroid which had caused a torsion of the pregnant uterus through 180 degrees, the fibroid which was in the right wall of the uterus being found in the left side of the pelvis. Interstitial tumors may, during the course of pregnancy, be extruded from the uterine wall and become subserous. Submucous tumors may be extruded from the uterus and be the cause of abortion. Gangrene of the tumor during pregnancy is caused either by pressure of the developing uterus on an incarcerated tumor with red degeneration of its substance or by direct interference with its blood-supply by torsion of the pedicle. Taylor[7] reports the case of a patient whom he operated on because of constant and increasing pain and from whom he removed a pedunculated fibroid and two sessile subserous tumors. The pregnancy went on to term with normal delivery. The microscopic report of the pedunculated fibroid showed it to be "a necrotic fibromyoma, suggesting that the blood-supply had been interfered with." He states, however, that there was no torsion of the pedicle so that the changes were probably due to the constant and increasing pressure on the tumor itself.

Torsion of the pedicle of a subserous fibroid during pregnancy seems to be exceedingly rare as stated by Mann. In a careful search of all literature at my command, I can only find the report of three cases of this accident, with a possible fourth. This last one is a reference by McMurty,[8] who says, "Subperitoneal fibromyoma which has become pedunculated has been observed with a twisted pedicle and consequent necrosis, as a result of the increased mobility incident to its ascent from the pelvis to the abdomen." As he does not give the case report, it is impossible to state as to whether it is one of the three, the reports of which I have been able to find. The first two cases are referred to by Olshausen and Veit[9] in their text-book on obstetrics, one of which was Cappie's case in which gangrene of the fibroids led to the death of the patient from peritonitis, and Kleinhans' case in which the tumor was removed during pregnancy and the patient recovered and was delivered at term. The third reported case was that of Barrows[10] who in an article on uterine fibroids complicating pregnancy, describes as his tenth case a pedunculated fibroid, twice the size of a fetal head which had crowded the pregnant uterus down into the pelvis and which had numerous adhesions. He operated with a diagnosis of torsion of an ovarian cyst and removed the fibroid which was becoming gangrenous, the circulation having been shut off by two twists in the pedicle. The patient aborted a fifth-month pregnancy two days after the operation and then had an uninterrupted convalescence.

In view of the extreme rarity of this complication as evidenced by the very few cases reported, among the hundreds of operations for the various accidents in which pregnancy and uterine fibroids coexisted, I thought it would be of interest to report in detail the following case of strangulation by torsion of a pedunculated subserous fibroid complicating a four and a half months' pregnancy.

History.—On the morning of April 15, 1910, I was called to see Mrs. G., who gave the following history: She had had the ordinary diseases of childhood. The year before she had been under a doctor's care for what she said was heart trouble. She said her heart beat too many times. She first menstru-

4. Schauta, F.: Myom und Geburt, Wien. med. Wchnschr., 1909, Nos. 40, 41 and 42.
5. Mumford, J. G.: Pregnancy, Uterine Myomata and Peritonitis, Boston Med. and Surg. Jour., Aug. 26, 1909.
6. Spaeth, F.: Myomotomie in der Schwangerschaft, Wegen Achsendrehung des Uterus, Deutsch. med. Wchnschr., March 5, 1908
7. Taylor, F. E.: A Case of Myomectomy During Pregnancy, Clin. Jour., April 27, 1910.
8. McMurty, L.: Treatment of Fibroid Tumors of Uterus Complicated by Pregnancy, Surg., Gynec. and Obst., March, 1908.
9. Olshausen-Veit: Reference to Cases of Cappie and Kleinhans, Text-Book of Obstetrics, p. 600.
10. Barrows, C. C.: Uterine Fibroids Complicating Pregnancy, Am. Jour. Surg., 1908, xxii, 100.

ated at 13 years of age, was always regular, periods recurring every twenty-four days, the flow was scanty, and she had no pain. There never was any intermenstrual bleeding. She had been married five years. She had never used any preventive measures against conception and had never conceived until this time. Her last period had been about Jan. 1, 1910. Since that time she had had the usual symptoms of a beginning pregnancy. About March 1, 1910, she first noticed a lump in the right lower abdomen which could be moved about rather freely. She consulted her women friends, who assured her it was the baby's head, and that it was all right. I afterward learned that she complained of pain in her right side from the beginning of pregnancy. Before she was aware of her pregnant condition she had consulted a doctor who told her she had a "water ball tumor" which should be removed. April 14, 1910, about 2 o'clock a. m., she got up to urinate and was taken with a sudden, severe, sharp pain in the lower right abdomen, which almost caused her to faint. She had to have her husband help her back to bed. She remained in bed all that day and the pain eased considerably, but the following day it was worse again.

Examination.—The patient was flat in bed, her temperature 98.6, pulse 115 to 120. On examination of the abdomen the pregnant uterus was felt about three fingers' breadth above the symphysis pubis and deflected somewhat to the left side. On the right side of the abdomen, extending from the pubis to McBurney's point was a well-defined mass, which at first felt like a fetal extremity at term; it had a distinct notch in it. The mass was extremely tender, especially at McBurney's point. On account of the extreme tenderness it could not be distinctly outlined from the uterus. On vaginal examination, the cervix was found softened, the os closed, the uterus enlarged to the size of about four and one-half months' pregnancy; Hegar's and Braxton-Hicks' signs could be elicited. High on the right side of the cervix was felt a sharp edge of a mass. Diagnosis was made of a four and one-half months' pregnancy complicated by either an extra-uterine pregnancy, appendicitis, pus tube, ovarian cyst with torsion of the pedicle or a pedunculated fibroid with torsion of pedicle. Patient was sent to the hospital for further observation and probable operation.

April 15, at 5 p. m. temperature was 99.2, pulse 120. The mass in the right lower abdomen was apparently a trifle larger and considerably more painful; the patient was obliged to sit up in bed with legs drawn up to get any relief from pain.

Diagnosis.—Appendicitis was excluded because of definite outline and firm consistency of the mass, of its having been freely movable during first two months of pregnancy and because of a lack of previous symptoms which would indicate appendicular trouble. Pus tube was also excluded because of distinct outline of tumor, its density and previous mobility; extra-uterine pregnancy was also excluded for the same reasons and because of term of pregnancy, four and one-half months, rupture would probably have taken place earlier, besides which normal pregnancy was unquestionably present. Probable diagnosis made of a strangulated pedunculated extra-uterine tumor complicating pregnancy. As to the nature of the tumor, subserous pedunculated fibroid was not considered probable because of absence of previous symptoms of fibroids and because of rarity of these tumors giving trouble of this kind during pregnancy. It was thought that the tumor was an ovarian cyst with a torsion of the pedicle because of previous physical signs and also because of diagnosis of the doctor who saw her two months previously. Operation was urged because of undoubted symptoms of strangulation. Dr. W. W. Richardson was called in consultation and agreed with the diagnosis of extra-uterine tumor and concurred as to the advisability of operation. It was decided to wait until the next day as the family was averse to operative interference. April 16, 1910, condition remained about the same as the previous day, the pain possibly being somewhat increased. The patient and family were again urged as to the necessity of the operation and at their request Dr. E. C. Moore was called in consultation. He agreed with the probable diagnosis of ovarian cyst with torsion of the pedicle. Operation was consented to and was performed at 2 p. m., April 16, 1910.

Operation.—With the patient under anesthesia the tumor mass could be definitely separated from the pregnant uterus. Incision was made in the median line of the abdomen. After opening the abdomen the hand was passed down to the tumor which felt very much of the size and shape and consistency of a kidney. The tumor which had no adhesions and was freely movable in the abdomen was easily delivered out of the wound and found to be a pedunculated, subserous fibroid with torsion of the pedicle. The pedicle was attached to the right lateral wall of the pregnant uterus and was a narrow, long strand of tissue, which was twisted on itself to the size of small twine. The tumor was quite dark in appearance. A catgut suture was passed through and around the pedicle and the tumor was removed. The stump of the pedicle was sewed over with catgut. A small interstitial fibroid about the size of a quarter was found in the anterior wall of the uterus betwen the tubal insertions. The tumor did not project beyond the surface of the uterus and as it was in a place where it would do no harm during pregnancy and labor and as its removal might cause an abortion, it was not disturbed. The abdomen was closed with a continuous catgut suture of the peritoneum; figure-of-eight silkworm-gut sutures through skin, fascia and muscle; a continuous catgut (No. 2 doubled) approximation of fascia; and a few silkworm-gut approximation sutures of the skin. Time of operation, forty minutes.

May 1, 1910: The convalescence was uneventful, except for a high pulse, 90 to 110, which continued up to the time of her discharge from the hospital. On the fourth day after operation, April 20, the patient felt fetal movements for the first time. The sutures were removed on the tenth day, the wound showing primary union throughout.

Course of Pregnancy and Labor.—The patient was fitted with an abdominal supporter. Throughout the course of pregnancy the patient was very nervous, the pulse remaining constantly from 90 to 100, there was a mitral regurgitant murmur at the apex of the heart, a distinct enlargement of the thyroid gland with other symptoms of hyperthyroidism. The small fibroid increased considerably in size and projected from the surface of the uterus immediately under the cicatrix to such an extent as to be discovered by the patient herself. The cicatrix remained firm but widened somewhat with the advance of pregnancy and became deeply pigmented throughout its course. The urine showed a trace of sugar throughout pregnancy.

Sept. 9, 1910, 6 p. m. the patient started in labor, the second stage beginning about 2 a. m. September 10; at 5 a. m. the pains were recurring about every three minutes and were good uterine contractions. As the patient was very nervous and would not help, the pains were ineffective and there had been no advance for about two hours. Median forceps were applied and a male child delivered without any difficulty. The child was in good condition. Delivery of the placenta occurred one-half hour later and the uterine contraction was good. There was no postpartum hemorrhage. The puerperal period was uneventful. The involution of the uterus was good and at the examination some four weeks after delivery, the small fibroid in the anterior wall of the uterus was not palpable.

611 Lissner Building.

ABSTRACT OF DISCUSSION

DR. J. S. BAER, Camden, N. J.: I have never had experience with cases of torsion of the pedicle of a fibroid, but I can recall five cases of fibroid tumor complicating pregnancy, and I was especially interested in the conclusion of the paper showing that this tumor had apparently atrophied. In the five cases I speak of there was some difficulty in the delivery. Each case became a forceps case and in each the tumor was not to be distinguished a year afterwards. I want to congratulate Dr. Lazard on the outcome of his case and on the excellence of his report of it. I had another case of fibroid in the posterior wall of the uterus low down in a pregnant woman at term in which a Cesarean section was necessary to deliver the child. I cannot tell anything about the outcome of that tumor because the patient died from pneumonia in about six days, but the child is still living. It has been my experience that all these patients bleed more than usual during delivery.

Therapeutics

ANESTHESIA AND ANESTHETICS

While narcotics have been used from very ancient times, the production of complete unconsciousness for surgical or other procedures is of comparatively recent date.

The properties of many anesthetics, even those now most commonly used, were academically known long before their practical use was demonstrated. Over half a century elapsed between Sir Humphrey Davy's suggestion (1798) that nitrous oxid gas be used to control pain during surgical operations and Horace Wells' demonstration (1844) of its use in dentistry. The exhilarating and anesthetic properties of sulphuric ether were matters of common knowledge long before the public demonstration of their surgical application by Morton and Jackson at the Massachusetts General Hospital in 1846, and even before its tardily recorded use in surgery by Long, of Georgia, in 1842. By 1847 ether was used for surgical anesthetization throughout the civilized world. The anesthetic properties of chloroform, discovered in 1831, seem to have escaped attention until 1847, when J. Y. Simpson, of Edinburgh, used it in operations and introduced it to the profession. Chloroform soon, doubtless on account of its more readily producing anesthesia, more swiftly and with a smaller amount of the drug, became the most generally used anesthetic throughout Europe, and it was used more frequently than ether up to twenty years ago, when ether began to displace chloroform on account of the number of deaths which occurred under chloroform anesthesia.

From the time of the discovery of ether and chloroform, various other preparations and mixtures have been used. Some have been used and recommended; some fell into immediate disuse, while others retained for a shorter or longer time a certain amount of popularity. Nitrous oxid gas, soon after its anesthetic properties were declared by Horace Wells, became more and more popular and more and more generally used for short surgical operations and by all dentists for the extraction of teeth.

With our present knowledge of practical anesthesia, it is not justifiable to depend on any one anesthetic exclusively. The safest anesthetic for a given patient must be decided by the physician in charge, but as a general rule it may be declared that nitrous oxid should be used only for very short operations; that in general ether is a safer anesthetic than chloroform, but that the safety of any anesthetic lies largely with the skill of the anesthetizer. It should also be remembered that some individuals are more shocked by observing even a minor operation under a local anesthetic than they are by the administration of an anesthetic, while with others it may be the reverse. There can be no question that under general anesthesia the surgeon and his assistants are not hurried and undoubtedly do more careful work, especially in preparing and arranging the tissues for the most perfect possible healing. On the other hand, it has now long been demonstrated that even one simple etherization carries with it a certain amount of shock and a certain amount of disturbance, more or less serious, of the internal organs, especially the heart and kidneys. Therefore, repeated anesthetizations, even with ether, are to be deplored, unless such anesthesias are widely separated by time. Also, there is no question that after an anesthesia the patient is in more danger of outside infection as well as from auto-infection, perhaps, from the part that is diseased.

Ether and chloroform seem to produce anesthesia by their action on the central nervous system, somewhat similarly to the action of alcohol. Briefly, they cause a progressive paresis from the highest nerve centers of the brain to the spinal cord centers or reflex centers, to finally the medullary centers, the vital centers. While in general the reflex centers of the genital region and rectum and eye reflexes are the last to become paralyzed in complete anesthesia, it will often be found that the part of the body which is to be operated on, or the part of the body on which the patient had his mind fixed before he was anesthetized, is the part which is the longest sensitive to pain.

It has been asserted that anesthesia is caused by a solution of the fatty constituents of the nerve cells. All fatty solvents seem to be anesthetic if they enter the cell, and the anesthetic power has seemed to be proportional to their ability to dissolve fat. It requires a certain amount of a solvent of the anesthetic in the blood-serum to affect nerve cells in this way, and this varies with the temperature of the animal and of the blood. The concentration of ether in serum necessary for complete anesthesia has been shown to be 1 part to 400, and of chloroform 1 part to 5,000 or 6,000. It has been thought that the rapid recovery which occurs when the anesthetic is removed shows that the fatty constituents are not taken out of the cell, but merely dissolved within it.

Almost all anesthetics are more soluble in lecithin and cholesterin than in water. This is suggested as the reason that the drug accumulates in the nerve cells. As chloroform has a greater ability to combine with lecithin and cholesterin, it thus becomes the stronger anesthetic. By the same action ether and chloroform may combine with the lecithin and cholesterin of the red blood-cells as well as of the nerve cells. This combination with the blood-cell constituents and the nerve constituents also must be very weak; as soon as the ether or chloroform vapor in the lungs is diminished and the anesthetic stopped, the drug immediately begins to excrete from the blood into the alveolar spaces and is exhaled.

AETHER, U. S. P.

Genitive, Aetheris

Description.—Ether $(C_2H_5)_2O$, is a clear, colorless liquid with a specific gravity of about 0.72. It is volatile and inflammable, and, when its vapor is mixed with air, is explosive. It has a sweetish taste and odor.

Local Action.—When it is poured on the skin a sensation of cold is produced by its evaporation, and if this action is produced or hastened, as by an atomizer, the surface may be frozen. If, however, the vapor is prevented from escaping, irritation results, and even vesication may be caused. The vapor of ether is slightly irritant to the conjunctivæ and to mucous membranes.

Systemic Action.—When taken internally it causes transient stimulation of the central nervous system and of the heart. The primary action is not dissimilar to that of alcohol. Its progressive action on the nervous system is to cause paralysis, first of the higher centers, then the spinal cord, and last the medullary centers. Such action, however, is not quite uniform, and it should be remembered that in profound anesthesia the last reflexes to disappear are of the rectum, genital organs and cornea.

The respiratory center is affected both directly and indirectly. At first, owing to the irritation of the

mucous membranes of the nose and throat, there is a reflex slowing and occasionally a temporary inhibition of respiration. This may be accompanied by a spasm of the glottis. Such a disturbance need not be caused if the anesthetic is given slowly. Soon, if the anesthesia is forced, or gradually when it is given carefully, the nerves of the throat become numb and the respiration then becomes regular and slower. In other words, the struggling, gasping, and irregular respiration can generally be avoided by the proper administration of the anesthetic. If the operation is prolonged, and with some patients even with a small amount of ether, the respiratory center becomes depressed, the respirations more and more shallow and slower and slower until death may occur by failure of the respiratory center.

Circulation.—The effect on the circulation caused by inhalations of ether is greatly modified by the action of the ether on the respiratory center. In other words, the heart may be very quickly much disturbed, if the respiration is disturbed. If the respiration is regular, the heart is for some time not much disturbed. From irritation of the throat and nostrils the heart may be, at first, reflexly slowed until the irritability of these nerves is dulled. If there is cerebral excitement or nervous excitation the heart becomes more rapid. It also becomes more rapid if there is sudden peripheral dilatation of the arterioles. Soon, however, as the surgical degree of the anesthesia is reached, the heart slows and the pulse becomes full and regular, and remains so throughout the anesthesia, unless a condition of shock occurs. In this condition the surface of the body becomes pale, heat is rapidly lost, more or less vasodilatation and paralysis occurs, the heart becomes rapid and may suddenly fail. In too profound anesthesia, or in insufficient anesthesia when sudden pain may cause pneumogastric inhibition, or in diseased heart conditions, such as chronic myocarditis or when there is disease of the coronary arteries, sudden heart death may occur during ether. Theoretically, however, in normal conditions, ether should give its notice of dangerous paralysis developing by primary impairment of the function of the respiratory center.

In circulatory weakness during anesthesia treatment of the vasomotor paresis is just as important as is the treatment of the weakness of the heart muscle, or even more so.

Throughout the ether anesthesia there is a gradual vasomotor paralysis. The more prolonged the anesthesia, the more the vasomotor weakness. There may be also a slight destruction of red blood-cells. In other words, etherization can never be anything but a circulatory depressant.

The blood-pressure may rise for a short time under ether narcosis, but such a rise is short-lived, and it should be remembered that although with each additional whiff of fresh ether the pulse may improve, the more ether that is administered and the longer it is given, the greater must be and will be the circulatory depression after the anesthesia is over; in other words, the greater the shock.

Pupillary Changes.—The pupils are first dilated under etherization and then contracted, and should remain more or less contracted during narcosis. When the eyelid is raised, if they are slightly dilated, they should quickly contract by light. If they do not so contract, the dilatation of paralysis has occurred, which is a danger signal, indicating that, ordinarily, the anesthesia is too profound.

Alimentary Canal and Respiratory Tract.—The only action on the alimentary canal and respiratory tract when ether is given by inhalation is that of slight irritation. Its irritant action may cause a profuse pouring out of bronchial mucus, and, when swallowed into the stomach mixed with saliva and mucus, it causes nausea and vomiting.

Kidneys.—Ether is always slightly irritant to normal kidneys, and may frequently cause an albuminuria. It is, however, dangerously irritant when there is an acute inflammatory condition of the kidneys, and may cause serious trouble when there is chronic inflammation of the kidneys.

Although the skin generally feels hot during ether anesthesia, the actual temperature falls, doubtless owing to a dilatation of the peripheral blood-vessels, causing not only more or less sweating and therefore a greater evaporation, but also a greater radiation of heat. In other words, heat is lost and the temperature falls during etherization. This makes the heated operating-room a necessity. Also, if the ether vapor is mixed with warm air it is less likely to cause an inflammation of the lungs or a pneumonia.

When ether is administered by inhalation, the absorption takes place mostly from the lungs. On the other hand, while it has been thought that some may be excreted into the stomach, it is probably almost entirely also excreted by the lungs. When ether is taken into the stomach and absorbed there, it also is excreted by the lungs.

Ether anesthetization may profoundly affect metabolism, disturbing the digestive system, increasing the nitrogen output but diminishing normal oxidation. It may cause an increase of the glycogen in the blood, but is not so likely to do so as is chloroform. It may so disturb the liver that bile may be found in the urine, but this also is not so likely as from chloroform. It seems, however, to be a fact that whether anesthesia is produced by ether or chloroform, the ability of the system to protect itself against invasion of germs is diminished for a shorter or longer time. In other words, a patient who has been anesthetized should be surrounded by the most perfect hygiene possible.

Therapy.—Ether is universally used to cause anesthesia, and is generally administered by inhalation. Internally it is sometimes used as a carminative for the same action as would be obtained from a volatile oil. It has been used as a quickly acting cardiac stimulant, taken in one or two whiffs, or administered in water or given hypodermatically; it causes temporary stimulation by its irritant effect. Such use, however, is hardly justifiable, as its secondary effect is always depressant, and as other quick cardiac stimulants are better, such as camphor, ammonia, or even alcohol.

Official Preparations

Spiritus Aetheris, spirit of ether, contains 32.5 per cent. of ether and 67.5 per cent. of alcohol. The dose is 5 c.c. (or 1 fluidram), a teaspoonful, best administered with cracked ice and water. The only object for this preparation is its action as a carminative.

Spiritus Aetheris Compositus, compound spirit of ether (Hoffmann's anodyne) contains 32.5 per cent. of ether, 65 per cent. of alcohol and 2.5 per cent. of ethereal oil. The dose is 5 c.c. (or a fluidram), a teaspoonful, best administered with cracked ice and water. This preparation has no special sedative effects. If alcohol is desired, whisky or brandy should be used.

(*To be continued*)

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[*For other information see second page following reading matter*]

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THE RÔLE OF LIPOIDS IN NUTRITION

The albuminous substances have long had the reputation of standing in unique relation to the activities of living cells. The word "protein" was intentionally selected to designate the preeminent part which these nitrogenous compounds play in the life processes. The eminent physiologist Pflüger coined the expression "protein is the sole living substance" (*nur das Eiweiss ist lebendig*). A recognition of this status has been one of the most effective incentives to those remarkable chemical and biologic studies of the proteins which have been carried out in recent years and have so greatly enlarged our horizon in this direction.

From time to time physiologists have called attention to the possible danger in allowing the supremacy of the proteins to overshadow other essential agencies in successful nutrition. The necessity of supplying a minimum of inorganic compounds—the so-called mineral nutrients—and of furnishing such materials as sodium chlorid, iron and lime salts in suitable amounts and proportions has made itself apparent. In the case of growing individuals the need of iron and calcium has long been recognized; but only of late has the physician acquired a more wholesome appreciation of what the inorganic salts may mean for the preservation of that equilibrium of nutritive processes which we call health. One may recall, as a single illustration, the damage which the undue loss of alkalies from the body, in various conditions of what is broadly termed acidosis, may bring with it.

Again, the other groups of "proximate principles," the fats and carbohydrates, have until quite lately been treated as if they played only an accessory part in nutrition, furnishing energy in interchangeable amounts —merely calorie carriers, as it were. Yet it is more than likely that each of these great groups of nutrients has some specific function in the organism. The appearance of the acetone bodies in the excretions when carbohydrate is withheld is a case in point, leading Rosenfeld to remark that the fats are burned in the flame of the carbohydrates.

Of late, more than passing interest has centered in another group of substances which deserve notice because of their wide-spread distribution in the cells and tissues of both animals and plants. They are termed "lipoids," by which is meant those cell components (other than simple fats) which can be extracted with organic solvents like alcohol and ether. Chemically speaking, they are labile compounds, prone to undergo changes in structure or physical state. The group of lipoids includes various substances, such as the better-known cholesterol and lecithins (phosphatids), members of heterogeneous classes of chemical compounds, though related in some of their characteristic solubilities and physicochemical behaviors. It is not impossible that they exist in the living cell protoplasm in combination with other constituents such as the proteins.

To the lipoids a conspicuous rôle has been ascribed in relation to the phenomena of narcosis, as indicated in the well-known theory of Overton and Hans Meyer.[1] This assumes that the narcotizing substance enters into loose physicochemical combination with the vitally important lipoids of the cell and in so doing changes their normal relation to the other cell constituents, through which an inhibition of the entire cell chemism results. The lipoids have also been associated with various phases of hemolysis and certain branches of immunochemistry.[2] It is by no means evident whether the adult animal organism can manufacture the lipoids, or is dependent on the synthetic capacity of the plant cell to furnish them. An attempt to throw light on this question has lately been made by Stepp.[3] This investigator has fed mice on foods which had been extracted with alcohol and ether to remove all lipoids. He has compared the subsequent duration of life of such animals with that of mice fed with similar unextracted materials or with the same lipoid-free food (usually extracted bread) to which the lipoids have again been added. The experiments show that it is not possible to keep mice alive during long periods when the extracted foods alone are fed, under conditions of environment in which normally fed mice thrive. The question is at once raised as to what specifically essential components of the diet are removed by the methods of extraction employed. They are not inorganic in character; for the addition of the "ash" of the extracts would not restore the nutritive efficiency of the lipoid-free foods. One might question whether a minimum of fat is not necessary for adequate nutrition; but the addition of milk-fat in the form of butter did not suffice to supply the essential missing dietary ingredient. Artificial additions of isolated lecithin and cholesterol were similarly inadequate. In contrast with these negative findings it was observed that the vitally important lipoid substances

1. Meyer, Hans: The Theory of Narcosis, Harvey Society Lectures, 1905-06, J. B. Lippincott Co., Philadelphia.

2. For the literature on this topic see Bang: Biochemie der Zelllipoide, Ergebn. d. Physiol., 1907, vi, 131; 1909, viii, 463.

3. Stepp, W.: Versuche über Fütterung mit lipoidfreier Nahrung, Biochem. Ztschr., 1909, xxii, 452; Verhandl. Kongr. inn. Med., 1911, xxviii, 324; Bedeutung der Lipoide für die Ernährung, Ztschr. f. Biol., 1911, lvii, 135.

are present in cream-free milk (*Milch-Plasma*). When the contents of an alcohol-ether extract of separator (skimmed) milk were added to lipoid-free foods the possibilities of uninterrupted health were restored to mice.

There are, obviously, numerous problems to be investigated before the final words in this chapter can be written. We may look forward with interest to further developments in this field to which the American investigators, Koch, Mathews and others, have contributed noteworthy findings. One observation by Stepp is of itself highly significant of what the future experiences may develop. Thus he noted that the lipoid extract from heated milk is not as efficient as that from the unheated. Such facts, evidently related to the instability of the lipoid components, bear directly on the ever recurring controversies of pediatric practice in relation to the pasteurization of milk. For the present, however, the real lesson of the facts cited lies in the warning against the danger of measuring food values solely in terms of calories.

THE CULTIVATION OF THE SPIROCHÆTA PALLIDA

Although the causal relationship between *Spirochæta pallida* and syphilis has been very generally acknowledged almost since the first announcement of the organism by Schaudinn in 1905, this has hitherto been based only on the quite constant association of the parasite with luetic lesions. The lack of definite proof has been due in part to the difficulty of producing the disease in laboratory animals, but mainly to our inability to obtain the spirochete in pure culture. But with the demonstration of the inoculability of rabbits with syphilis, the first of the obstacles was removed, and very recently Noguchi[1] and Hoffmann[2] have independently announced the artificial cultivation of the organisms in purity and with little apparent loss of virulence. Schereschewsky[3] had, it is true, previously succeeded in growing them in artificial media, but he failed to obtain pure cultures, and while other workers were able to accomplish this, their organisms had apparently lost their virulence, and animal inoculations with them failed. Noguchi's method consists in the inoculation of infected tissue from a rabbit into a medium of diluted serum to which a piece of sterile animal tissue had been added. When incubated under strictly anaerobic conditions the spirochetes were found to grow, although at first almost invariably in association with other organisms. Solid media apparently interfered with the growth of the first generations, but with adaptation to artificial conditions this difficulty disappeared. Pure cultures were obtained in several very ingenious ways. In one case the organisms were grown through a Berkefeld filter of suitable porosity, thereby straining off, as it were, the contaminations. Later it was found that in stab agar growths the spirochetes infiltrated a wider zone than did the other bacteria, and inoculations made from this zone yielded pure cultures.

The essential factors for successful cultivation are apparently the presence of sterile fresh animal tissue in the medium, and strict anaerobiosis. The necessity for the latter, however, disappears to some extent with longer cultivation. As is very frequently the case with pronounced parasites, by far the greatest difficulty is presented by the original inoculation of the artificial medium. Injection of the cultures into rabbits is followed after a suitable period by local lesions, in which are found both the anatomic changes characteristic of syphilis, and typical spirochetes in large numbers. Hoffmann's work, which appeared a little later than that of Noguchi, establishes the connection of the disease in the rabbit with that of man even more firmly, inasmuch as his isolation of the organism was directly from the human lesion.

Aside from the demonstration by this work of the specificity of *Spirochæta pallida* as the cause of syphilis, it will probably be of importance in other ways also. For not only does it open up new fields in the study of the etiologic factors of lues, but it contains possibilities in the way of new and more efficient diagnostic aids. And while at present Noguchi's method of cultivation is so difficult as to offer a bar to rapid progress, it is likely that further development of it will result in its simplification.

1. Noguchi: Jour. Exper. Med., 1911, xiv, 99.
2. Hoffmann: Deutsch. med. Wchnschr., 1911, xxxvii, 1546.
3. Schereschewsky: Deutsch. med. Wchnschr., 1909, xxxv, 835.

BENZOATE OF SODA AGAIN

The American public believes that a question is not settled until it is settled right. This probably accounts for the fact that the sodium benzoate question will not down. And yet, although volumes have been written on this much controverted subject, the problem itself is really a simple one. There are three basic facts on which all are agreed: First, no one denies that sodium benzoate in foods may prove harmful in certain quantities, under certain conditions or when given to certain classes of individuals. Second, no one denies that foodstuffs of a high quality can be put up without the use of sodium benzoate; in fact the best food manufacturers do not use this chemical. Third, no one denies that when this chemical is used, scrupulous cleanliness and extreme care in handling are no longer necessary. These are three incontrovertible facts, admitted grudgingly or frankly, as the case may be, by both the pro and anti-benzoate forces. Under the circumstances, then, it is not irrational to conclude that sodium benzoate should not be used as a food preservative.

And now comes from Berlin the "Expert Opinion of the Royal Scientific Deputation for Medical Affairs Regarding the use of Benzoic Acid and its Salts for the Preservation of Food." These experts were requested by the Minister of Education and Medical Affairs in

Germany to give their opinion on this subject. In their report, they first describe the chemical and physiologic action of these drugs and then briefly summarize the findings of various scientists on the question at issue. Of the decision of the United States referee board, these German scientists say:

"The series of experiments in this connection made by the American scientists are of too short duration and the results coupled with certain limitations, so that they cannot be regarded as demonstrating the unconditional non-injurious nature."

After considering all of the evidence on the subject the Scientific Deputation for Medical Affairs reaches the following conclusions:

"In regard to the admissibility of the use of benzoic acid and its salts for the preservation of food it is mentioned that in France on the basis of a decision of the Commité consultatif d'hygiène publique of October 1, 1888, the Minister of Justice in his circular dated October 16, 1888, prohibited the use of benzoic acid in drinks and food.

"In Austria the Supreme Sanitary Council in an expert opinion dated Dec. 16, 1899, decided in favor of a prohibition of preserving substance containing benzoic acid or its salts, and has adhered to this standpoint in a recent expert opinion and given a detailed justification of the same. In the same sense the Saxon Landes-Medizinal-Kollegium expresses itself.

"The Scientific Deputation for Medical Affairs is likewise of the opinion that the use of benzoic acid and benzoic acid salts for the preservation of food should not be permitted. Even if small doses of the same may be considered harmless for the human organism there is still a danger that, with the addition of these substances to the various food and drinks on the whole quantities would be daily consumed, which would be injurious to the organism. This fear is particularly justified in the case of children, the aged, and weak or sick persons, whereby it is to be observed that even in the case of normal food not preserved with benzoic acid substances are introduced from which benzoic acid comes into existence in the body.

"A further objection against the use of chemical preservatives at all consists in the fact that in its use the food intended for consumption may not be handled with the necessary care and cleanliness to prevent its decay or injury by fungi and that, being neglected by the manufacturers and sellers, under certain circumstances the quality of the goods would suffer. . .

"Similar objections exist regarding albuminous food liable to decay. The experiments of the imperial health office have demonstrated among other things that a slight smell of decay in chopped meat may be concealed, but not entirely removed, by merely stirring or turning over the meat; but on mixing with 0.25 per cent. benzoic acid or sodium benzoate the smell disappears for a time. By this process, therefore, food which has already commenced to decay can be given the appearance of freshness and the purchaser deceived as to its quality."

These findings agree exactly not only with the opinion officially expressed by the American Medical Association in its resolutions on this subject, but also with the opinion held by other scientific bodies and by the intelligent public generally. With the reorganization of the Department of Agriculture, which is as inevitable as it is necessary, it is to be hoped that the United States government will soon cease to hold its present inconsistent position on the subject of the use of sodium benzoate in foods. This chemical has no place in the dietary of any people and certainly its legalized use is a disgrace to an enlightened nation

POLITICS AND THE PUBLIC HEALTH SERVICE

Recent events have drawn attention forcibly to instances of political meddling with the public health service. Within a year the Ohio State Board of Health, long regarded as one of the ablest and most progressive in the United States, has been demoralized by the influence of partisan politics. First eleven members of the laboratory staff were summarily dismissed, including Dr. B. R. Rickards, chief of the laboratory, a well-known scientific worker and for some years past managing editor of the *Journal of the American Public Health Association*. More recently Dr. C. O. Probst, secretary of the Ohio board during a long period, has felt that his duty to the state and his regard for his own honor obliged him to resign his position. Dr. Probst has been a figure of national importance in public health affairs, and it is largely his leadership that has given the Ohio Board of Health its well-deserved reputation in the last decade. An effective health organization has now been swept away. All this is due to the fact that the present governor of Ohio saw fit to fill vacancies on the board with representatives of his own political faith, regardless of merit or especial fitness for the official duties. High political ambitions have been blocked for a lesser cause.

And now, of the three new members appointed by the governor of Massachusetts to the State Board of Health of Massachusetts, not one is an expert or possesses any special qualifications for securing the welfare of the people; but all, of course, are blessed with acceptable political views. It is not necessary to dwell on the absurdity of the assumption that a man's opinion on the tariff or the trusts has any bearing on his fitness to deal with problems of public health. The governor of Massachusetts has likewise exposed himself to criticism by his delay in reappointing Dr. Walcott to the Metropolitan Water and Sewerage Commission. As reported in our news columns last week, a petition bearing the signatures of over two thousand physicians asking for Dr. Walcott's appointment has been presented to the governor. The State Board of Health of Massachusetts has long been one of the most active and efficient in the country. Many men of high scientific eminence have served on its staff, and its scientific work has been given the highest commendation here and abroad. It would be a national misfortune if partisan politics were allowed, even temporarily, to influence its efficiency.

Again, in the State of Illinois, it is true that the State Board of Health has for some years past been the object of much criticism, whether rightly or wrongly we need not here say. Whatever be the facts as to improper licensing, unpleasant rumor and gossip on the subject have been current. The result is that many physicians have not been in sympathy with the Illinois board and as a natural consequence the efficiency of the board has not been high. Loss of confidence, from whatever cause, prevents effective work. It is now stated in

the daily press that the governor of Illinois intends to reorganize the State Board of Health with a view to restoring public confidence in the activities of this important body. The new appointments will be watched with interest.

However the problem in these three great states is finally worked out, the duty of physicians is clear. We should insist, in season and out, that expert qualification should be a requisite for any appointment to the public health service or to the ranks of those who have the care of our state and county dependents. The issues are too momentous to allow us to tolerate the injection of partisan politics into public health matters. Intervention in public affairs means for the physician a high degree of self-sacrifice for the common weal, but those who live in a democracy can never forget that eternal vigilance is the price of liberty.

Current Comment

PROTECTING THE HEALTH OF PRISONERS

The frequent occurrence of diphtheria at the New York State Reformatory at Elmira led the superintendent and his medical staff to investigate its source. It was found on taking throat cultures of arriving prisoners that a considerable proportion of them harbored the diphtheria bacillus. When these new prisoners mingled with the healthy reformatory population, epidemics of diphtheria started. An examination of all arrivals since November, 1910, revealed diphtheria bacilli in more than eighty out of 920 prisoners admitted. An isolation hospital had constantly to be maintained. In an effort to eliminate this source of infection, the superintendent obtained an opinion from the attorney-general of the state and instructions from the state commissioner of health which may involve rather far-reaching consequences in relation to the rights of prisoners and the duties of the state and prison authorities regarding the protection of the health of prison inmates. The attorney-general expressed it as his opinion that "the health of prisoners sentenced to reformatories is as much a part of the public health, and they are entitled to as much protection from contagious disease as any other portion of the public," and that it was up to the state board of health to take such steps as were necessary. On this opinion the commissioner of health instructed the superintendent of the reformatory to notify jails or penal institutions that before being sent to the reformatory prisoners must be examined to determine whether or not they are suffering from any infectious or contagious disease. The superintendent accordingly issued such instruction and required that, in addition to a general examination for such diseases, a throat culture must be taken and a certificate of health attached to the commitment. It will be seen that the right is recognized of a prisoner to demand protection of his health either from inmates with whom he is compelled to associate more or less closely, or from insanitary, unhygienic conditions in the prison itself, either from its manner of construction, or from defective care, or from infection of the surroundings by diseased inmates, for which he no doubt might invoke the aid of the courts. It is asserted that many penal institutions, particularly the older ones, are hotbeds of tuberculosis, and that a long term in them means almost certain infection. The possibility of other infections is shown in the instance of diphtheria in the Elmira Reformatory.

BUNCOMBE, BUT NOT BUNCOED

Buncombe County, North Carolina, can boast of the unique distinction of having given an expressive word to the English language. Possibly on account of its name, and because they may have imagined that pseudo-scientific buncombe would pass muster there, three enterprising medical fakers opened an office in that county. But they were disappointed. It is true that the local paper accepted as "copy" the buncombe by which these swindlers hoped to gather victims—at regular advertising rates—and it was left to the local medical society to step in and protect the public from the wiles of these impostors. How this was done is described in detail in another place.[1] What the Buncombe County Medical Society did in ridding their locality of undesirable citizens can be done, in the majority of cases, when necessary, in any other county in any other state of the union. It is too bad that work of this sort practically always is left for local physicians to do. No matter how altruistic the motives of physicians may be, the charge will always be made in certain quarters that, in putting medical fakers out of business, the medical profession is not so much concerned with the public's welfare as it is with the elimination of competitors. So long, however, as the newspapers of the country enter into an unholy alliance with medical frauds instead of standing between their readers and these swindlers, so long, probably, will it be necessary for the medical profession to take the initiative in exposing humbugs of this kind.

HAY FEVER AND LOCAL CELLULAR ANAPHYLAXIS

Anaphylaxis at times manifests itself as an exquisitely local process, which is best explained by the assumption that the cells concerned have acquired specifically the power of digesting within themselves the protein which causes the reaction, and hence they are also the chief sufferers from the poisons engendered by this splitting of foreign proteins. An especially striking example is furnished by Bloch and Massini,[2] who found that if a bit of skin from a person infected with trichophyton was transplanted to a healthy person, it would continue sensitive to trichophyton as shown by the local reaction to filtrates from trichophyton cultures. Schittenhelm and Weichardt have described a form of intestinal anaphylaxis which occurs in dogs when they react to a second injection of egg albumin. Violent intestinal symptoms accompanied by a hemorrhagic enteritis extending from stomach to anus, are ascribed to the assumption by the epithelial cells of the task of digesting the foreign protein which reaches them from the blood,

1. Propaganda for Reform department, in this issue, "Electro-Radio Fakers."
2. Ztschr. f. Hyg., 1909, lxiii, 68.

with resulting local poisoning by the toxic products of this proteolysis. These authors[3] explain hay fever on the same basis, as a local anaphylactic reaction to pollen proteins. If true, this explains the inefficiency of antipollen serum when injected subcutaneously into hayfever patients, for such an antiserum would be entirely ineffective in combating the local effect of products of proteolysis. The successful treatment of some patients by local application of serum to the nasal mucosa they ascribe to the antiproteolytic power which serums commonly exhibit, whether from normal or from immunized animals. For this purpose, however, normal serum should be as efficient as immune serum, or more so, and there are clinical observations which are entirely in agreement with this idea. Certainly the evidence which is now rapidly accumulating all points towards the anaphylactic nature of hay fever and many related conditions, and from all we know of anaphylaxis there is no hope to be offered of efficient antitoxic serum therapy; but there is every hope that with the progress of our knowledge of anaphylaxis will come the rational therapy of disorders of this class.

PENNSYLVANIA'S MEDICAL ORGANIZATION AND THE AUSTIN FLOOD

The town of Austin, Pennsylvania, was destroyed by a flood September 30. There were seven physicians in the town, three of whom were members of the Potter County Medical Society. The secretary of the Pennsylvania State Medical Society advanced $200 for the relief of the physicians, and the board of trustees, which is ex officio a committee on benevolence in that organization, authorized the secretary to receive contributions to assist the physicians of Austin and their families, with the understanding that any money received in excess of what is needed for the present emergency is to become part of the benevolence fund of the state society. Within four weeks, voluntary contributions to the amount of $800 had been received. Can any one doubt that "organization" is effective?

SECTARIAN CATSPAWS FOR FAKERS

In a recent number of the New York *Herald* appeared an account of a meeting held in that city by the National League of Medical Freedom to protest against the establishment of a national department of health. After the usual hysterics regarding the "medical trust" and its awful work, one of the speakers is reported to have said:

> The Owen bill says that the new department of health shall recognize no school of medicine. Why not make it say that it will discriminate against no school of medicine? The bill would say this if Senator Owen was not admittedly the agent of the American Medical Association in this matter.

This is a fair sample of the quibbling and hair-splitting objections raised against this measure. The National League of Medical Freedom, according to its accredited representative, would evidently like the Owen bill better if its wording were amended as indicated. Very well, so far as the American Medical Association has any influence, it will certainly favor such a change, as well as any other changes which will make it clear to the deluded sectarian dupes of the "patent-medicine" interests that the establishment of a national department of health has nothing to do with the individual practice of medicine, and that the passage of the Owen bill will not, in any way, affect the relations between physicians and patients. The wily "patent-medicine" fakers and the food adulterators are trying desperately to make the Eddyites and the medical sectarians believe that they are in danger of martyrdom in the near future. As has been repeatedly stated, the federal Congress has no jurisdiction whatever over the practice of medicine in the states. The followers of cults, fads and sects are needlessly exciting themselves. No one has any desire to interfere with their freedom to believe anything they like. But if a change in verbiage will relieve their overwrought minds and calm their excited fears, it is to be hoped that the suggested change will be made.

3. Schittenhelm and Weichardt: Deutsch. med. Wchnschr., 1911, xxxvii, 867

Medical News

COLORADO

Personal.—Dr. Leonard W. Ely has retired from the editorship of *Colorado Medicine* and the work has been taken up by Dr. Charles S. Elder, a member of the Publication Committee of the state society.——Dr. Samuel R. McKelvey has succeeded Dr. Benjamin Franklin Wooding as inspector of the Lying-In Hospital of Denver.——Dr. James T. Muir has been elected chief of the Caledonian Society of Colorado Springs.

DISTRICT OF COLUMBIA

Personal.—Dr. W. C. Ruediger has been advanced from assistant professor of educational psychology in the Teachers' College of George Washington University.——Dr. Ralph A. Hamilton has been appointed professor of histology and embryology in the school of medicine of Georgetown University.——Dr. William F. R. Phillips, formerly dean of the medical department of George Washington University, has been elected professor of anatomy in the School of Medicine, University of Alabama, Mobile, and has moved to the latter city.

Society Indorses Wiley.—Resolutions of congratulations to Dr. Harvey W. Wiley were duly adopted by the Medical Society of the District of Columbia at its meeting, October 11. The resolutions set forth that the members have been deeply interested in the investigation of the work of Dr. Harvey W. Wiley in his efforts to secure the enforcement of the pure food regulations; that they heartily rejoice that Dr. Wiley has been completely exonerated from any alleged wrong-doing and that his methods and principles have been fully vindicated, and furthermore present to the President of the United States their commendation of the justice, wisdom and impartiality displayed in his settlement of the dispute.

New Maternity.—The Elisha Francis Riggs Memorial Building of Georgetown University Hospital, especially designed for the care of maternity cases, is under roof and will be in operation in January next. The first floor of the building will provide for twenty-four colored charity patients; the second floor is designed for a similar number of white patients; the third floor will accommodate twenty patients who will pay from $10 to $12 per week, and the fourth floor is to be devoted entirely to private rooms. Each floor has separate delivery and recovery rooms, accommodations for nurses, diet, kitchen, etc.——Another pavilion, 30 by 100 feet, will be erected on the corner of Thirty-Sixth and N Streets, which will be devoted entirely to the care and treatment of mental and nervous diseases. This pavilion will fill a distinct need in the care and treatment of this class of patients and will greatly enhance the facilities for clinical instruction in the University.

ILLINOIS

State Health Board Members Resign.—Dr. George W. Webster, Chicago, president; Drs. Henry Richings, Rockford; Perry H. Wessel, Moline, and Walter R. Schussler, Orland, members of the State Board of Health, have resigned.

State Conference of Charities.—At a meeting of the Illinois State Conference of Charities and Correction held in the Illinois Auditorium, Urbana, last week, the following officers were elected: president, Prof. Edward C. Hayes, University of Illinois, Urbana; vice-presidents, F. E. Morey Lyon, Chicago, and Mrs. Nannie Duncan, Bloomington; and secretary-treasurer, Mr. A. L. Bowen, Springfield. The next conference will be held in Springfield.

Personal.—The obituary notice of Dr. Perry H. Wessel, Moline, which appeared in the Chicago *Tribune* of October 29, was exaggerated, as Dr. Wessel is still alive and attending to his practice.——Dr. Ralph T. Hinton, assistant superintendent of the Jacksonville State Hospital has been appointed superintendent of the Elgin State Hospital. Dr. Edward A. Foley, assistant superintendent of the Anna State Hospital, has been transferred to the Jacksonville Hospital. Dr. Charles F. Read, assistant superintendent to the Watertown State Hospital to the Kankakee State Hospital and Dr. Thomas R. Foster, assistant superintendent of the Kankakee State Hospital, to the Anna State Hospital.——Dr. Augustus W. Chandler, Compton, has purchased a residence in North Dixon for $15,000, which he will remodel and open as a private hospital.——Dr. John Niess, Jr., Carmi, is reported to be critically ill.——Dr. Sidney D. Wilgus, formerly superintendent of the Elgin State Hospital has been transferred to a similar position in the Kankakee State Hospital and assumed charge of the institution, October 10. On leaving Elgin, October 7, the employees of the State Hospital tendered him a purse containing fourteen $5 gold pieces and a new dollar bill, as a parting gift of remembrance and esteem.——Dr. George J. Schneider, Elgin, fractured his right wrist while cranking his automobile, October 7.——Dr. Henry J. Gahagan, Elgin, fell on the stairs of his office, October 10, and injured his right leg.——Dr. Samuel Nuel Sims, Danville, is said to have been adjudged insane by the Iroquois County Court, October 11, and committed to the Kankakee State Hospital.

Chicago

Baptists Project Hospital.—At the annual meeting of the Illinois Baptist Association, October 18, an appropriation of $100,000 was recommended for the erection of a Baptist Hospital in Chicago.

Hospital Notes.—Pursuant to the wishes of his late wife, James B. Hobbs has presented to the Frances E. Willard National Temperance Hospital a six-flat building on Prairie Avenue, valued at about $25,000.——An emergency hospital is being installed in connection with the temporary police headquarters at Clark and Harrison Streets.

New Hospital Dedicated.—The dedicatory exercises of the new building of the People's Hospital were held October 29-31. On October 29 a mass meeting was held for patrons and friends on the ground floor of the old building; the Founders' Club Festival was held the same evening. The evening of October 30 was given over to a banquet to, and inspection of the building by the various contractors and their employees, and on October 31 an informal gathering of members of the medical profession and their families was held. The new building is three stories and a basement in height; of brick, with cut-stone trimmings, fire- and sound-proof, and contains four wards of ten beds each, and twenty-one private rooms in addition to the other necessary accommodations.

INDIANA

Hospital for Elkhart.—Work is to be commenced at once on a modern hospital for Elkhart, and a subscription of $48,000 has been subscribed for this object.

Social Service Department Organized.—Dean Emerson of the Indiana University School of Medicine has organized a social service department in the City Dispensary, Indianapolis.

Employment of School Nurses Not Authorized.—Attorney-General Honan has given an opinion to the State Board of Health that the statute governing medical inspection in schools does not authorize the employment of nurses by the school authorities.

District Society Meeting.—At the annual meeting of the Eleventh Councilor District Medical Society held in Wabash, October 20, Dr. Lorin W. Smith, Wabash, was elected president; Dr. James L. Gilbert, Logansport, secretary and treasurer, and Dr. Godlove G. Eckhardt, Marion, councilor.

Infantile Paralysis.—The epidemic of infantile paralysis, which raged in all parts of the state during the summer and fall, showed a total number of cases of 102 up to October 28. Of these twenty-eight were in cities and seventy-four in the country; three-fourths of all patients are under 5 years of age and seventeen deaths occurred. Dr. William F. King, Columbia City, assistant secretary of the State Board of Health, who makes this report, states that in eighteen instances animals giving evidence of a similar illness, inhabitated the premises.

Communicable Diseases Prevalent.—All the city schools of Madison have been closed and all children have been prohibited from attending public gatherings on account of an epidemic of diphtheria.——The public schools of Petersburg have been closed on account of the prevalence of forty-two cases of scarlet fever.——Diphtheria in epidemic form is reported from Greensburg, where more than forty patients are under quarantine.——The city schools of Crawfordsville have been closed on account of epidemic diphtheria.——From twenty to thirty new cases of diphtheria have lately been reported in Indianapolis each day; Sunday schools have been closed and children have been prohibited from attending public gatherings. The city council has appropriated $3,000 to meet the cost of making 30,000 cultures.

IOWA

Personal.—Dr. Frank S. Hough has opened the Sibley Hospital.——Dr. Phillip G. Young, Hocking, started for Vienna, October 28.——Dr. Charles French, who has been ill with septicemia at St. Luke's Hospital, Cedar Rapids, has been obliged to have the infected finger amputated.

New Hospital Established.—An organization was perfected at a meeting of physicians of Manchester, recently, which assured the establishment of a hospital and nurses' training school in that place. Dr. Harry M. Bradley was elected president of the organization; Dr. Thomas Burns, vice-president; Dr. John A. May, secretary; Dr. Ernest G. Dittmer, treasurer, and Dr. William Coburn, house physician of the new institution. Residence property has been leased as a temporary location, but it is planned later to erect a modern hospital building.

Society Meetings.—At the annual meeting of the Second District Medical Society held in Davenport, October 10, the following officers were elected: president, Dr. Elbridge H. King, Muscatine; vice-presidents, Drs. Edgar B. Henderson, Marengo, and Harry R. Reynolds, Clinton; and secretary-treasurer, Dr. John V. Littig, Davenport (reelected). The next meeting will be held in Davenport, October 19, 1912.——At the annual meeting of the Council Bluffs Medical Society, the following officers were elected: Dr. Matthew E. O'Keefe, president; Dr. Merle F. Warner, vice-president; Dr. David H. Carson, secretary; and Drs. Christian S. Ericksen, Sydney Smith and F. Earl Bellinger, censors.

KANSAS

Hospital Dedicated.—The new hospital of the Medical Department of the University of Kansas, at Rosedale, was dedicated with appropriate ceremonies, October 23.

Personal.—Dr. John D. Horne, Coffeyville, who was recently said to suffer with cerebral hemorrhage, writes that he had simply a second stroke of paralysis, has lost the use of his legs from the hips down, and is confined to his house.——Dr. Romulus Z. Linney, Wichita, is reported to be critically ill, following an operation for appendicitis.——Dr. Byron L. Hale has been appointed city physician of Cherryvale, vice Dr. Benjamin M. Savage.

KENTUCKY

Tuberculin Test Enforced.—At a meeting of the city and county board of health held in Lexington recently, it was decided to begin an enforcement of the State Board of Health regulations for the tuberculin test of cattle. All animals showing a positive reaction will be slaughtered.

State Association Meeting.—The fifty-sixth annual meeting of the Kentucky State Association was held in Paducah, October 24-26, under the presidency of Dr. Joseph E. Wells, Cynthiana. The following officers were elected: president, Dr. David O. Hancock, Henderson; vice-presidents, Drs. Delia Caldwell, Paducah; William L. Mosby, Bardwell, and James R. Steele, Corbin; orator in medicine, Dr. Curran Pope, Louisville; orator in surgery, Dr. Archibald H. Barkley, Lexington; delegates to the American Medical Association, Drs. William W. Richmond, Clinton, and J. W. Ellis, Masonville; councilor for the Fourth District, Dr. Robert C. McChord, Lebanon; and

councilor for the Eleventh District, Dr. James S. Lock, Barboursville. The secretary, Dr. Arthur T. McCormack, Bowling Green, and treasurer, Dr. William B. McClure, Lexington, hold over for another year.

Work of the Health Exhibit Car.—The traveling health exhibit car of the Kentucky Association for the Study and Prevention of Tuberculosis, during its recent tour, visited sixty-one towns and cities in ninety-one days and in each of these illustrated lectures were given in halls, churches and schools. During this time 25,039 persons visited the car and inspected the exhibits and 11,565 attended the lectures given. There were distributed from the car 20,144 pieces of literature.

Society Meeting.—At the annual meeting of the Bourbon Medical Society held in Paris, October 17, the following officers were elected: president, Dr. Charles B. Smith, Millersburg; vice-presidents, Drs. Frank Fithian, Paris, and Arthur H. Kelly, Paris; secretary and treasurer, Dr. David B. Anderson, Paris; delegate to the state society, Dr. William Kenney, Paris, and alternate, Dr. John T. Brown, Paris. Resolutions were adopted making suitable recognition of that part of the will of the late Mrs. W. W. Massie, which has made the establishment of a hospital in Paris a possibility.

Personal.—Dr. Louis G. Contri, Milton, is reported to be critically ill with carcinoma of the stomach.——Dr. Evart Hawkins, Finchville, is reported to be seriously ill with ptomain poisoning.——At its annual meeting in Frankfort, October 12, the State Board of Control is said to have entered an order for the removal of Dr. R. L. Willis from the superintendency of the Eastern Kentucky Hospital for the Insane, Lexington.——Dr. W. J. M. Smiser, Skylight, was seriously injured, October 5, by being thrown from his horse.——Dr. David C. Bowen, Elizabethtown, is reported to be critically ill with tuberculosis.——Dr. Everett Layton Pirkey, has been appointed superintendent of the Waverly Hills Sanatorium, vice Dr. Archibald B. Elkin, resigned, to become superintendent of the Elkin-Goldsmith Sanatorium, Atlanta, Ga.——Dr. Frederick A. Stine, Jr., Newport, has been elected a member of the State Board of Health, to succeed himself.

MARYLAND

Charity Conference.—The Seventh Maryland Conference of the Board of Charities and Correction will be held in Baltimore, November 27-29. Among the important matters for discussion is a plan for the establishment of county hospitals for advanced cases of tuberculosis, and the county commissioners will be invited to attend and take part in the conference as a special tax levy will be required to carry out this plan.

Baltimore

Verworn on Narcosis.—Prof. Max Verworn of the University of Bonn, Germany, made an address before the Johns Hopkins Society, October 30, on "Narcosis."

Typhoid Fever.—Many cases of typhoid fever are reported in the city. The Maryland General Hospital reports thirty-five cases; Mercy Hospital, forty; University Hospital, twenty; Franklin Square Hospital, ten; and the Maryland Homeopathic Hospital, three.

Italian Steamer Detained.—As a precaution against members of the crew being infected with cholera, the Baltimore quarantine detained the Italian steamer *Soperga* from the Mediterranean, but no trace of the disease was found on board.

MASSACHUSETTS

Liner Released.—As no cholera infection was found among the crew of the Bucknell steamer *Kioto*, it was released October 6 and allowed to dock at East Boston.

Addition to Dispensary Started.—Work was begun October 5 at the Boston Dispensary, to add a fourth story to the building, which will be arranged as a hospital for infants and children and will accommodate about thirty-five patients.

Large Estate.—The estate of Dr. Charles G. Weld who died in Brookline last June, leaving large bequests to the Massachusetts General Hospital, and the Boston Dispensary and the Boston Lying-In Hospital, has been found to amount to $773,000.

Work of Dispensary.—At the one hundred and seventeenth annual meeting of the Boston Dispensary, the reports showed that more than 30,000 sick poor had been treated during the past year in its clinics, and 10,000 others had been cared for in their homes.

Addition to Consumptives' Home Opened.—On October 8 nearly 7,000 people visited the Free Home for Consumptives, Dorchester, to inspect the addition just completed. This was the first of a series of gatherings for the collection of a fund for opening the addition, which will provide 125 more beds for the institution.

Elections.—At the annual meeting of the Brookfield Medical Club in Ware, October 18, Dr. Ephraim W. Norwood, Spencer, was elected president; Dr. Homer Z. Leach, Gilbertville, vice-president; and Dr. Idelle L. Edmands, North Brookfield, secretary-treasurer.——At the annual meeting of the Attleboro Anti-Tuberculosis Society the following physicians were elected as members of the executive committee: Drs. William O. Hewitt, Frederick V. Murphy, Boston, Clarence W. Estey and George E. McPherson.

Personal.—The appointment of Dr. Henry P. Walcott, Cambridge, as a member of the Metropolitan Water and Sewage Commission, was properly confirmed by the council.——Dr. L. Vernon Briggs, Boston, has been appointed a member of the State Board of Insanity.——Dr. Ernest B. Emerson, Tewksbury, formerly superintendent of the North Reading (N. H.) Sanatorium, has been appointed medical director of the State Farm institution, Bridgewater.——Dr. Charles P. Putnam, chairman of the board of trustees of the children's institutions of Boston, has retired.

MISSOURI

Tag-Day.—The total collections of tag-day for Mercy Hospital, Kansas City, amounted to $5,561.

New Building Dedicated.—Governor Hadley, on October 8, presided at the dedicatory exercises of Hadley Hall, the new addition to the State Sanatorium for Incipient Tuberculosis, Mount Vernon. The new building will accommodate about seventy-five patients.

Hospital for Insane Consumptives.—The new building for the care and treatment of insane consumptives at the Fulton State Hospital for the Insane is nearly ready, and will be opened December 1. This is the first hospital of its kind in the state, and has been erected at a cost of about $50,000.

Personal.—Dr. Robert H. Goodier, Hannibal, president of the Missouri State Medical Association, has moved from Hannibal to Stoutsville.——Dr. Harvey S. Reese, Wayland, coroner of Clark County, has resigned and moved to Macon.——Drs. William J. Thompkins, M. O. Bausfield, Ernest J. McCampbell and J. Edward Perry have been appointed assistants to the medical and surgical staff of the Kansas City General Hospital, and will look after the colored patients in the institution.——Dr. Ephraim M. Folsom, Boonville, has returned from Europe.——Dr. James A. Gray, Watson, lost the sight of his left eye from a blow with a baseball recently.——Dr. Samuel A. Johnson, Nevada, has established a sanitarium in Springfield for the treatment of mental and nervous diseases.

Society Meetings.—The Saline County Medical Association held its annual meeting in Marshall, October 20, and elected the following officers: president, Dr. Abner E. Gore, Marshall; vice-presidents, Drs. A. Fletcher Brown, Malta, William L. Sharp, Little Rock, and Frank Aubrey Howard, Slater; and secretary, Dr. John R. Hall, Napton.——The Twelfth Councilor District Medical Association, at its semi-annual meeting, October 10, in Platte City, elected Dr. Eugene C. Robichaux president.——The Kansas City Academy of Medicine held its annual meeting, October 7, and elected Dr. Samuel S. Glasscock, Kansas City, Kan., president; Dr. Frank C. Neff, vice-president; Dr. Peter T. Bohan, censor; Dr. Charles B. Hardin, treasurer, and Dr. Paul V. Wooley, secretary, all of Kansas City, Mo.

NEBRASKA

State Hospitals for Consumptives.—The state has purchased land at Kearney for the establishment of a city hospital for indigent consumptives and a residence already on the 13-acre tract is to be used as one of the buildings of the institution.

Personal.—Dr. Wright Newman, Aurora, was shot in the face and seriously injured while duck hunting, October 22.——Dr. Anders P. Overgaard, Fremont, was thrown to the pavement of his garage while cranking his automobile, and is suffering from concussion of the brain.

NEW JERSEY

Personal.—Dr. John W. Pratt, Coatesville, Pa., has been elected president of the Medical Society of Chester, Delaware and Montgomery counties.——Dr. E. S. Bloch, Williamstown, has been made medical inspector of the schools of Monroe Township.

Alumni Organize.—At the monthly meeting of the Jersey City Hospital staff an alumni association was formed at

which Dr. Frank D. Gray, Jersey City, was elected honorary president; Dr. Gustav F. Boehm, Jr., president; Dr. John Lautman, Jersey City, secretary, and Dr. George W. Mueller, Newark, treasurer.

Meeting of Eastern Monmouth Practitioners.—The annual meeting of the Eastern Monmouth Practitioners' Society was held in Red Bank, October 12, and the following officers were elected: president, Dr. D. Edgar Roberts, Keyport; vice-president, Dr. William W. Beveridge, Asbury Park; secretary, Dr. Peter P. Rafferty, Red Bank, and treasurer, Dr. William K. Campbell, Long Branch.

Tri-County Society Meeting.—At the annual meeting of the Tri-County Medical Society of Morris, Sussex and Warren Counties, held in Washington, October 18, the following officers were elected: president, Dr. Abram E. Carpenter, Boonton; vice-presidents, Drs. Enos E. Beatty, Newton, and George W. Cummins, Belvidere; secretary, Dr. Charles B. Smith, Washington, and treasurer, Dr. Frederick W. Flagge, Rockaway.—— Dr. Charles S. Heritage, Glassboro, has been elected president and Dr. George S. Redding, secretary, of the Tri-County Medical Society, at the annual meeting held in Bridgeton, October 24. The next meeting will be held in Woodbury.

NEW YORK

Meeting of the State Department of Health.—The Annual Conference of Health Officers met in Carnegie Lyceum, New York City, October 25. The subject discussed was the control of communicable diseases. Dr. Frederick B. Willard of Buffalo called attention to the dangers of contagion from street cars, and urged proper disinfection for trolley cars all over the state. He also urged the enactment of laws prohibiting the dry sweeping of all cars, and thought such a law ought to apply to all public places, whether conducted by the state, municipality or individual.

Sanitary Officers Meet.—The second annual convention of the New York State Sanitary Officers' Association was held in New York City, October 24. Nearly all of the 1,400 sanitary districts in the state were represented at the meeting. A resolution was passed and copies sent to all members of the legislature denouncing the action of the recently adjourned legislature in passing bills appropriating thousands of dollars for the prevention of disease among cattle and hogs, while they cut down the appropriation for the care of human beings suffering from tuberculosis. They also called the attention of the legislature to the need of uniform laws on such matters as the regulation of spitting on sidewalks and in public places, and the lack of uniformity on the treatment of insane patients. The following officers were elected to serve during the ensuing year: president, Dr. Frank Overton, Patchogue; vice-presidents, Dr. Daniel S. Burr, Binghamton; Dr. Louis B. Couch, Nyack, and Dr. Louis H. Brown, Pine Plains; treasurer, Dr. William Stanton, Webster; and secretary, Dr. Montgomery E. Leary, Rochester.

New York City

Harvey Lecture.—Dr. James J. Putnam, Harvard University, delivers the fourth of the present series of lectures at the New York Academy of Medicine on Saturday evening, November 11, at 8:30, on "Freud's Psycho-Analysis."

Plan Two Inebriate Hospitals.—The Board of Inebriety is preparing to build a hospital at Kingston Avenue, Brooklyn, on a site provided by the Department of Charities. A second hospital will be built on Blackwell's Island, where confirmed inebriates will be received.

Money for the Blind.—The Department of Charities recently made its annual distribution of money to worthy blind poor. About $75,000 were distributed, which was much more than ever before, due to the number of blind persons who are learning trades and who before they can earn their own livelihood, are forced to ask for assistance from the department.

Personal.—Dr. Samuel J. Meltzer of the Rockefeller Institute for Medical Research has been elected a member of the Imperial Leopoldina Carolina Academy of Naturalists, at Krakau.——Dr. Theodore C. Janeway has been appointed a member of the board of scientific directors of the Rockefeller Institute for Medical Research, vice Dr. Christian A. Herter, deceased.

City Increases Appropriations.—The city budget for the coming year provides that the Health Department shall receive $3,392,938, which is an increase of $569,438 over the present appropriation. Bellevue and the Allied Hospitals get an increase of $86,060, and the Department of Charities an increase of $169,155.

Find More Tuberculosis.—The report of Leopold Plaut, president of the United Hebrew Charities, read at the annual meeting of this organization, shows an increase in the number of cases of tuberculosis among working people, the percentage increasing from 14 to 20 per cent. Mr. Plaut said there was no doubt that overwork, congestion and undernourishment were largely responsible for this increase.

Medical College Opened.—Cornell University Medical College opened September 27, with an enrollment smaller than that of the preceding year, which is due to the fact that all matriculants for the degree of M.D. now registered are admitted under the advanced requirements, which necessitated the presentation of a bachelor's degree in science or arts, together with something more than one year's work in physics, chemistry and biology.

Health Department to Take Over Milk Stations.—The twenty-two milk stations of the New York Milk Committee will be taken over by the Health Department on November 1. This action followed an appeal from the Milk Committee to the Health Commissioner to take charge of these stations and the 5,000 babies in the dispensary list of the Milk Committee. The infants will be looked after by department physicians and nurses until the first of the year. The Health Department has been looking after fifteen milk stations, which, together with those of the Milk Committee, will make thirty-seven. It is believed that money will be available to support sixty stations next year.

NORTH CAROLINA

Hookworm Exhibit.—Dr. John A. Ferral, Kenansville, Assistant Secretary of the State Board of Health, had an interesting exhibit at the state fair in Raleigh last week. Hookworm victims were shown, and the parasites themselves with the ova. Physicians were in attendance to examine applicants who desired to be examined for the disease. A lecture with stereopticon views, microscopes and the regular paraphernalia complete of a "hookworm dispensary" in operation were on exhibit. The exhibit attracted much attention, and a large number of examinations of patients were made during the week. Eighteen counties have now made provision for a systematic canvass and examination of all young people through the establishment of hookworm dispensaries.

PENNSYLVANIA

Philadelphia

Personal.—Dr. William Zentmayer has been elected professor of ophthalmology in the Philadelphia Polyclinic and College for Graduates in Medicine, succeeding Dr. Theodore B. Schneideman, resigned.——Dr. Eugene L. Vansant, professor of diseases of throat and nose in the Philadelphia Polyclinic Hospital is recovering from the effects of an infected wound of the right hand.

To Sell Hospital.—Unless the writ is stayed before November 6, the Douglas Memorial Hospital and Training School will be sold by the sheriff to satisfy a mortgage of $25,267. For some time, this institution which recently built a new hospital building, has been in financial difficulties and about a year ago the property was to have been sold at sheriff's sale, but the writ was stayed. Besides the encumbrance of $25,267 on the property there is a mortgage of $31,000.

Increase of Contagious Diseases.—While the health report for the week ending October 28 shows a marked decrease in the total number of deaths as compared with the previous week and also a decrease of more than 10 per cent. in the number of deaths from pneumonia and bronchopneumonia, there were eighty-one new cases of diphtheria reported with eleven deaths. There were thirty-five new cases of chickenpox and one death, and twenty-five new cases of scarlet fever with twenty-five deaths.

Physicians Endorse Cassidy's Work.—At a meeting of the northern branch of the Philadelphia County Medical Society, resolutions were passed endorsing the work of Harry P. Cassidy, special agent of the State Dairy and Food Commission, who is waging a relentless war on the food adulterators, and promising him united and individual support. Prof. Charles H. La Wall, chemist of the commission, was one of the speakers at the meeting and called attention to a list of United States court decisions, just published. In one, a man is fined $200 for adulterating food for cattle, while in another, a firm is fined only $10 for selling putrid ketchup.

UTAH

Personal.—Dr. Edgar G. Bates has been appointed medical examiner of the public schools of Ogden.——Dr. Albert S. Bower, Salt Lake City, was in charge of the emergency staff of physicians at the recent state fair

Utah State Medical Association.—The Utah State Medical Association, at its seventeenth annual meeting, held in Salt Lake City, October 4 and 5, elected the following officers: president, Dr. Robert W. Fisher, Salt Lake City; vice-presidents, Drs. Charles E. West, Salina; Eugene H. Smith, Ogden, and T. H. Howells, Bountiful; secretary, Dr. W. Brown Ewing, Salt Lake City (reelected); treasurer, Dr. Howard P. Kirtley, Salt Lake City, and delegate to the American Medical Association, Dr. Sol G. Kahn, Salt Lake City.

GENERAL

Ohio Valley Meeting.—The thirteenth annual meeting of the Ohio Valley Medical Association will be held in Evansville, November 8 and 9, under the presidency of Dr. William D. Haines, Cincinnati.

Southern Physicians Meet This Month.—The annual meeting of the Southern Medical Association will be held in Hattiesburg, November 14-16.——The Southern Medical College Association will hold its annual meeting in conjunction with that of the Southern Medical Association.

Labor Unions Approve Red Cross Seal.—The National Association for the Study and Prevention of Tuberculosis announces that at the last annual convention of the American Federation of Labor, resolutions were adopted, calling on all members of the federation to endorse the movement for the sale of Red Cross Christmas seals to secure funds for carrying on the campaign against tuberculosis.

Personal.—Surgeon Henry R. Carter, United States Public Health and Marine-Hospital Service, in charge of the United States Marine Hospital, Louisville, is seriously ill with typhoid fever.——Lieutenant Herbert W. Yemans, M.R.C., U. S. Army, has returned to his station, Fort Wayne, Detroit, after attending the Esperanto Congress at Antwerp, Belgium, of which he was appointed temporary chairman. Dr. Yemans was tendered a reception, October 14, at the Randolph Hotel, Detroit. ——Dr. and Mrs. Grosbeck Walsh, Cristobal, Canal Zone, started October 9 for their future home in Nicaragua.——The Canadian government has appointed Dr. Gilbert T. Smith, Stamford, Conn., formerly of Baltimore, physician to the American party in the Alaskan boundary survey, to take charge of the medical treatment of the village of Indians at Rampart House, where there is an epidemic of small-pox.

Railway Surgeons Meet.—The tenth annual meeting of the association of Seaboard Air Line Railway Surgeons was held in Washington, October 17-19, and the following officers were elected: chairman of the executive committee, Chief Surgeon Dr. Joseph M. Burke, Petersburg, Va.; president, Dr. Samuel C. Benedict, Athens, Ga.; vice-presidents, Drs. Hampden A. Burke, Petersburg, Va.; Robert L. Harris, Jacksonville, Fla., and John H. Miller, Cross Hill, S. C.; and secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga. (reelected).——The second annual meeting of the Railway Surgical Association of the Southwest was held in El Paso, Tex., October 20 and 21, and the following officers were elected: president, Dr. Francis E. Shine, Bisbee, Ariz.; vice-presidents, Drs. John W. Colbert, Aubuquerque, N. Mex., and Carlos E. Husk, Santa Barbara, Mexico; secretary-treasurer, Dr. Herbert E. Stevenson, El Paso, Tex., and trustees, Drs. Samuel D. Swope, Deming, N. Mex.; H. F. Bailey, Courtland, Ariz., and William L. Brown, El Paso, Tex.

Clinicians to Meet in Philadelphia.—As already announced in THE JOURNAL, the second annual meeting of the Clinical Congress of Surgeons of North America will be held in Philadelphia, November 7-16, with headquarters at the Hotel Bellevue-Stratford. The clinical program is extensive. The first of the evening literary sessions, held in connection with the Philadelphia County Medical Society, will be devoted to the surgery of the upper abdomen; on the second evening the president's address on "Coordination of Undergraduate and Postgraduate Teaching of Clinical Surgery" will be given by Dr. Albert J. Ochsner, Chicago; Dr. Alexis Carrel, New York City, will present a paper, illustrated by lantern slides, on the "Technic and Remote Results of Blood-Vessel Anastomoses," and Dr. William J. Mayo, Rochester, Minn., will give an illustrated address on "Cancer of the Stomach; Its Surgical Cure." The Friday evening session of the congress will be held in conjunction with the meeting of the Philadelphia Neurological Society; the meeting of November 13, with the Academy of Surgery; that of November 14 with the Pediatric Society of Philadelphia, and that of November 15 in connection with the Obstetrical Society of Philadelphia. On the last evening there will also be held a combined meeting of the Section on Otology, Laryngology and Ophthalmology.

American Public Health Association.—The thirty-ninth annual meeting of the American Public Health Association will be held in Havana, Cuba, December 5-9, under the presidency of Dr. Robert M. Simpson, Winnipeg, Man. Dr. M. Varona Suarez is president and Dr. Federico Torralbas, secretary, of the local committee of arrangements. The program of the meeting includes symposiums on Asiatic cholera, hookworm disease and tuberculosis, and papers on pellagra, acute anterior poliomyelitis, typhoid fever, Mexican typhus and isolation hospital construction and management. The laboratory section will consider the reports of the various technical committees on standard methods for the analysis for milk, water and sewage and the bacteriologic diagnosis of tuberculosis, typhoid fever, etc. In the section on vital statistics a symposium will be held on mortality registration in the South and the subject of "Uniform Tables for Statistical Reports and Bulletins" will be considered. The section of municipal health officers will give prominence in its meeting to the promotion of the efficient application of scientific sanitation to municipal conditions. No programs are announced for the new sociological section, or the section on sanitary engineering. The headquarters of the association will be in the Hotel Sevilla, and the general sessions will be held in the rooms of the Ateneo and Circulo de la Habana. The university laboratories will be used for the laboratory section. Ample entertainment has been provided by the courtesy of the people of Havana, including a trip to a tobacco plantation, a banquet at the National Theater, a picnic on the grounds of La Tropical Brewery, a Spanish-Cuban Verbena at the Hotel Sevilla, a trip to Morro Castle, Cabanas, Triscornia Detention Camp and a visit to the wreck of the *Maine*.

Prevention of Infant Mortality.—The second annual meeting of the American Association for Study and Prevention of Infant Mortality will be held in the Hotel La Salle, Chicago, November 16-18. Two popular sessions have been arranged for; two general sessions, and six section meetings. The opening session will be addressed by the president Prof. Charles Richmond Henderson of the University of Chicago, Dr. George B. Young, commissioner of health of Chicago, and Dr. Hastings H. Hart of New York. The speakers at the popular session November 17 will be Dr. Henry J. Gerstenberger of Cleveland, Miss Jane Addams, and Dr. William A. Evans of Chicago, and Dr. Joseph W. Schereschewsky of the U. S. Public Health and Marine-Hospital Service, Washington, D. C. The section meetings will be under the chairmanship of the following: Nursing and Social Work, Miss M. Adelaide Nutting, Department of Nursing and Public Health, Columbia University; Housing, Mr. Lawrence Veiller, secretary and director National Housing Association, New York City; Midwifery, Dr. Mary Sherwood, Baltimore; Eugenics, Prof. H. E. Jordan, University of Virginia; City Milk Supply, Prof. Edwin O. Jordan, University of Chicago; and Continuation Schools of Home Making, Dr. Helen C. Putnam, Providence. Prof. Charles R. Henderson of the University of Chicago is president of the association, and Dr. Cressy L. Wilbur, Bureau of the Census, Washington, is president-elect for 1912. Dr. Frank S. Churchill of Chicago is chairman of the local committee of arrangements; the other members of the committee include Dr. Isaac A. Abt, Mrs. Arthur Aldis, Dr. William A. Evans, Dr. Clifford G. Grulee, Dr. Caroline Hedger, Mr. Sherman C. Kingsley, Mr. Robert Stevenson and Dr. Frank X. Walls. Among the reports to be presented will be one on birth registration, by Dr. Wilmer R. Batt, State Registrar of Vital Statistics, Harrisburg, chairman of the association's committee on that subject.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 21, 1911.

Despatch of Another British Commission for the Investigation of Sleeping-Sickness

The British government is sending out a further commission to Central Africa to investigate sleeping-sickness. This will be in charge of Col. Sir David Bruce, assisted by Captain Hamerton of the army medical corps, and Professor Newstead of the Liverpool School of Tropical Medicine. The work will be confined to Nyassaland. An interesting point is that the trypanosome of the disease is believed to be conveyed in this country by a fly other than the tsetse, which is the carrier in other parts of central Africa, for none of this species has yet been found in Nyassaland. The commission, which is going out under the auspices of the Royal Society, is expected to be absent from England for three years. One of its principal

objects is to ascertain whether the fly which is supposed to convey the disease depends on the presence of big game. If this is proved to be so it may involve the wholesale destruction of wild animals.

Foundation of a Eugenics Laboratory

An appeal is being made for $75,000 to build a eugenics laboratory in connection with the University of London. As stated in a previous letter (THE JOURNAL, April 8, 1911, p. 1048), Sir Francis Galton left the residue of his estate to the University of London for the endowment of a professorship and laboratory for national eugenics, expressing the wish that the university would see fit "to preserve the capital thereof wholly or almost wholly intact, not encroaching materially on it for cost of building, fittings or library," as the income from his bequest was insufficient to cover both endowment and adequate buildings. In accordance with his suggestion, Prof. Karl Pearson, F.R.S., has been appointed first Galton professor, assisted by a staff of highly trained workers, who now find very insufficient accommodation in a few small rooms temporarily placed at their disposal at University College. The output of the laboratory in the form of original investigations has been very large, and on the ground that the institution has already been of great value and will render increased public service with its fuller development, the University of London feels justified in sanctioning an appeal for such external aid as will enable the staff to carry out effectively this portion of their functions. There can be no doubt that the laboratory has before it plenty of work of important social value. It is now in possession of material received from educational and health authorities in all parts of the country, which alone would require three or four years' labor for the existing staff to analyze and publish, and the bulk of it has direct bearing on the most important social and national problems of the day.

Reform of the Naval Medical Service

In a previous letter (THE JOURNAL, Sept. 23, 1911, p. 1065) considerable reforms in the naval medical service, including the establishment of a new and more modern school at Greenwich, was described. New regulations with regard to the service have now been issued. The limit of age of admission is 28. Every candidate must be interviewed by the director general, who will decide whether such candidate will be allowed to enter for the examination. About thirty commissions will be competed for annually, but the admiralty reserves the power to admit each year six colonial graduates who may be specially recommended by the colonial universities. A successful candidate will be appointed acting-surgeon and is required to pass through a course of six months' study. He will then be reexamined and, if he passes, given a commission as surgeon. His position in the examination determines his seniority. Considerable encouragement is given to candidates to hold house appointments in civil hospitals. Any successful candidate holding or about to hold the office position of resident medical officer is allowed to complete his period of office, and the time so occupied counts for his general service in the navy, though he will not receive pay for it. The course of study during the probationary six months is extensive. In the first two months the acting-surgeon is required to cover the ground of tropical medicine, bacteriology and clinical pathology, hygiene and skiagraphy. This work will be done at the new school at Greenwich. The remainder of the probationary period will be spent at the old naval school at Haslar in learning the routine peculiar to the naval surgeon. If the examination at the end of this course is duly passed, a final one will follow toward the end of the eight years' service. After this each officer will be required to attend a six months' course of postgraduate study and to pass an examination which will qualify him for the rank of staff-surgeon. After eight years' service as staff-surgeon he will be eligible for promotion to fleet-surgeon. The pay of substantive rank has not been altered, but increments of pay are given more frequently than heretofore—every two years. After eight years' service the pay is $5 a day, while staff-surgeons go up to $2,130 a year and fleet-surgeons to $3,340, deputy surgeon-generals to $4,100 and surgeon-generals to $6,500. It must be borne in mind that in addition to the pay the extras and allowances are considerable. A feature which is very likely to attract men to the service is the generous scale of retired pay. After so short a period of service as four years a surgeon may retire with a gratuity of $2,500, and the gratuity is increased by this amount for every additional four years' service up to $10,000, while the pay of retired men who have served from twenty to thirty years varies from $5 to $10 a day.

A Pharmacist Refuses to Supply an Antidote in a Case of Poisoning

An inquest has been held on a clerk who took hydrochloric acid. He was taken to the shop of a pharmacist, who refused to give an antidote. The pharmacist said that it was not his duty to prescribe and that the man should be taken to a hospital. A little chalk and water was asked for and was also refused. Some whiting, obtained elsewhere, was administered. The man was taken to a hospital, where he died. The house-surgeon gave evidence to the effect that if chalk and water had been promptly administered the man's life might have been saved, but admitted that the pharmacist acted within his legal rights in refusing to "prescribe." The jury refrained from expressing any opinion on the subject. The case has not given rise to any comment in the medical or lay press. Of course, the former would in general approve of a pharmacist refusing to prescribe, as one of the stock topics is the grievance of the profession from "counter prescribing" by pharmacists. But surely the pharmacist was wrong in refusing to supply the antidote, and was wanting in both common sense and in humanity. He might have remembered that while it was not his duty as a pharmacist to prescribe, it was his duty as a man to do what he could for a human being in danger of death when medical aid was not available. What would be thought of a layman who saw a person bleeding to death from a wound and refused to try to stop the flow because he was not a surgeon? In this case the refusal was less excusable because the pharmacist possessed technical knowledge which would have enabled him to deal with the case.

The Workmen's Compensation Act

The Workmen's Compensation Act has given rise to some very difficult legal problems. Drawn up in the widest possible manner so as to make the employer liable for any accident "arising out of" the employment, attempts are made to make it cover almost any misfortune which can befall a workman. At Edinburgh, recently, the widow of a gardener, who lived in his own house and had a garden of his own at which he worked, claimed compensation because he died of tetanus. One morning after returning from his master's garden he cleaned his boots without taking them off and in doing this he tore his thumb, under the nail, against a lacing hook in one of the boots. Four days later tetanus began and he died from the disease. There was no evidence to show how the dirt under the nail was obtained but considering the nature of his employment and the fact that the bacillus of tetanus is generally found in manure and leaf-mold, the judge held that it was reasonable to hold that it was obtained when working in his master's garden, but, on the ground that the accident did not arise out of the gardener's employment, he refused compensation. An appeal was made to a higher court where the judge again refused compensation as the man, after leaving his master's premises, was no longer in the latter's employment. He was at liberty to attend to his own affairs, and the accident was not met with in the course of his employment. It had been maintained that the bacillus got into his thumb while he was working in his employer's garden. Even assuming this, it must be shown that it attached itself to his body while he was working for his master. In another case a hatter claimed compensation because he contracted mercurial poisoning while engaged in his trade. The employers maintained that they did not use mercury and that it must have been in the fur which they bought. The judge held that it could not be said that the workman was employed in a mercurial process when the employer did not provide the mercury or even know that it was there.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 13, 1911.

The Twenty-Fourth Meeting of the French Surgical Association

The Association française de chirurgie held its twenty-fourth meeting, October 2, under the presidency of Dr. Paul Segond, professor of clinical surgery at the Faculté de médecine de Paris, and surgeon of the hospice de la Salpêtrière. Among those present were many foreign surgeons, notably Arbuthnot Lane of London, Thomson of Edinburgh, E. Laplace of Philadelphia, Charles L. Gibson of New York, W. B. Coley of New York, Sonnenburg of Berlin, Jules Boeckel of Strassburg, Depage of Brussels, Lanz of Amsterdam, Tavel and Girard of Berne, etc.

Dr. Segond read a paper on collaboration between physicians and surgeons. It will be remembered that last year Dr. Delagenière, who then presided, reproached physicians with sending their patients too late to surgeons. His remarks elicited lively protest (THE JOURNAL, Nov. 5, 1910, p. 1660). Dr. Segond was more conciliatory. He recognizes that in many circumstances it is very difficult for the surgeon to see clearly without drawing constantly on the more refined means of medical investigation and the special information furnished by the experienced observation and judgment of the physician. In more than one visceral disease the aid of medicine is not only useful and desirable but altogether indispensable. Trepanning, which for many centuries was exclusively surgical, has now become, thanks to its new application, a medico-chirurgical operation *par excellence*. Sometimes it is the appreciation of evident signs which is difficult for the surgeon. Sometimes a uremic patient with headache, vomiting and amaurosis is in danger of being taken to the operating-room as a subject of intracranial neoplasm. There is, therefore, no possible progress in surgical neurology without medical collaboration.

Three subjects were discussed.

DIAGNOSIS AND TREATMENT OF CHRONIC APPENDICITIS

This question continues to hold its interest, judging by the forty-five speakers who enrolled themselves to take part in the discussion. It was necessary to reduce to five minutes the time accorded to each speaker.

According to Dr. J. Silhol, assistant professor at the Ecole de médecine de Marseille, the diagnosis of chronic appendicitis is made especially on the following elements: spontaneous pain which may be aberrant, fixed elicited pain, sometimes deceptive, indefinite digestive symptoms, general symptoms, which are important but not characteristic. Altogether the diagnosis is rather the result of a "special clinical sense" than of a close study of observed symptoms. Dr. Silhol considered, however, that the radioscopic examination was very useful and that it deserved to be systematically employed.

The treatment of chronic appendicitis was the subject of Dr. Charles Walther, surgeon of the hospitals of Paris and *agrégé* professor at the Faculté de médecine de Paris. If operation becomes imperative in cases of general predominating infections with gastric symptoms in which pains are very sharp, etc., the case is quite different from what it is when appendicitis accompanies biliary lithiasis, lesions of the uterine adnexa, movable kidney, etc. Under such circumstances each case deserves exhaustive study, but most frequently the removal of the appendix is to be recommended. As for the technic, Dr. Walther recommends general anesthesia and the incision which causes the least trauma. It is necessary to cover the stump with peritoneum and not confine oneself to excision alone. It is indispensable to make a wide and methodical exploration of the region, for one may have to deal at the same time with several complications in the epiploon of the colon. The after-treatment, which is often neglected, has great importance. It is not to be recommended that patients be allowed to leave their beds early in complicated cases. Feeding should be carefully supervised. The kidneys should be carefully watched during the first days. The emission of the first gases should be facilitated by suppositories and enemas and a purgative on the fourth day. Phlebitis is a complication which must be reckoned with. Cases of evident phlebitis are ordinarily observed in the left leg. Cases of latent phlebitis, which are more frequent, make themselves known by embolisms, generally pulmonary.

Dr. Laplace of Philadelphia insists on the good results given after appendicectomy by the Murphy proctoclysis, which now renders drainage less necessary. Suppuration and gangrene are not the clearest indications for drainage. The cases in which drainage are indicated, on the contrary, are those in which there is no suppuration, but a vivid redness of the intestine. Gauze drainage is often much better than tube drainage. Dr. Sonnenburg of Berlin, in cases in which the disease is hard to diagnose, recommends radiography, which, however, gives results only if the appendix communicates with the intestine, for it is indispensable that the bismuth should penetrate it. He insists on the rôle of pericolitis, while believing that one ought to remove the appendix in the first place, since this operation affords a certain relief to the intestinal lesion. Dr. Richelot of Paris protests against the idea that appendicitis is only a small part of a very complicated condition—a kind of general auto-infection. Dr. Lanz of Amsterdam recommends that too deep palpation be not used whatever the difficulties in diagnosis, for sometimes deep hematomas may be caused by such means. Dr. Girard of Berne remarks that the Rovsing procedure for eliciting pain at the level of the sacrum is unreliable, but it may be perfected by the aid of rectal insufflation.

TREATMENT OF ACUTE PERITONITIS

Dr. Hartmann, professor of operative medicine at the Faculté de médecine de Paris, remarked that for twenty-five years the chief ideas in the treatment of acute peritonitis have undergone a double evolution. Treatment, exclusively medical at first, then became exclusively surgical; the path thereupon was retraced, and treatment with immobility, diet and ice accepted. This treatment, however, is dangerous. It is now established that an acute peritonitis may be cured when once its cause is removed, even though the whole of the infectious material has not been removed. The basis of treatment when an exact diagnosis has been reached (and it must be reached), consists in suppressing the cause of the trouble. When operative treatment is necessary, preparation for the operation should be simplified. Tincture of iodin is sufficient to disinfect the skin. After general anesthesia, incision should be made according to circumstances. Lavage and evisceration should be avoided. The important thing is to drain well.

Dr. Témoin of Bourges in his paper emphasized the importance of the treatment popularized in the United States by the Fowler brothers and Murphy. All the French surgeons who have used Murphy's method have obtained excellent results. When Murphy's irrigations are not well tolerated the intestine may be irrigated by Billington's procedure after appendicostomy or cecostomy. In all this, however, it is necessary to act promptly and swiftly. This is the secret of success.

OPEN TREATMENT OF FRACTURES

The discussion showed that none of the methods of open treatment of recent fractures is absolutely free from danger. As Dr. L. Bérard of Lyons recognized in his paper, surgery of bones is the province of experienced operators who are able to surmount the difficulties found at every step. There are, however, certain contra-indications. If, indeed, old age is not always a reason to abstain from the open treatment, diabetes, albuminuria, badly compensated heart lesions and visceral scleroses are permanent or temporary obstacles. In all recent closed fractures one should always begin by the use of bloodless methods. The period of traumatic shock should be allowed to pass in order to permit the retrocession of muscular hematomas and articular effusions. Nascent infections may thus be avoided. One should then wait eight or ten days, employing the time by making radiographic examinations; thus the number of operations may be reduced. Dr. Tuffier of Paris was an enthusiastic partisan of osteosynthesis, but many other surgeons made important reservations. Dr. Koch of Groningen, Dr. Lucas Championnière of Paris, Dr. Depage of Brussels, etc., considered suturing of the bones a procedure to be employed only in exceptional cases. The perfect anatomic coaptation of the fragments is not at all necessary for the good functioning of a member. It is necessary also to bear in mind that the presence of a foreign body in the bones often produces complications, and after suture there may be delay in bony consolidation.

THE SURGICAL ASSOCIATION AND DR. DOYEN

At the last session of the association there was a significant occurrence. Dr. Doyen took the floor to proclaim the curative action of "mycolysine," a product of his own invention, which he has already declared repeatedly in the daily papers, "is to transform if not to render completely useless all operative technic of the present day." The audience experienced a certain discomfort. Some foreign surgeons expressed their regrets at hearing, on the floor of a scientific organization of as high order as the Association française de chirurgie, journalistic and sensational communications intended for advertising purposes. A resolution was even offered that henceforward no one should advertise pharmaceutical products before the association. Unfortunately the rules of the meeting prevented this resolution being put to the vote.

The Next Congress of the International Surgical Society

The International Society of Surgery, which was founded at Brussels in 1902, and is composed exclusively of surgeons, has just held its third congress, September 26 to 30, at Brussels. The society has broken with tradition. The next meeting, the first one to be held outside of Brussels, will be held in 1914 in New York under the presidency of Dr. Depage of Brussels.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 13, 1911.

Personal

Professor König of Greifswald has been appointed as the successor of Professor Friedrich as director of the surgical clinic at Marburg. Professor Pels-Leusden, for many years first assistant at the surgical clinic at the Charité, has received a call as director of the surgical clinic at Greifswald in place of Professor König.

As successor of von Pirquet, Professor Pfaundler has been nominated to the first place for director of the pediatric clinic at Breslau.

Professor Strasburger of Bonn has been called as successor of the deceased Professor Stern of Breslau. It is scarcely to be expected, however, that he will accept the call.

Medical Inspection of Corpses Before Cremation

According to the directions for the administration of the cremation law an official medical certificate as to the cause of death is required. The necropsy shall be undertaken as soon as possible after death. The official certificate as to the cause of death must give an exact statement as to the manner in which the death was produced. The conduct of the necropsy by artificial light is not permissible, and it should be undertaken by the method most adapted to promote the main purpose of the law, namely, to prevent the concealment of a criminal action by which the death was brought about. By a thorough questioning of the relatives and of the attending physician the medical official shall obtain an exact picture of the course of the disease immediately preceding death and the circumstances under which death resulted.

Tuberculosis Mortality in Prussia in 1910

According to the recently prepared official statistics the tuberculosis mortality in the kingdom of Prussia in the year 1910 has undergone a further reduction. Compared with 1908 the number of deaths was reduced by 2,841 and compared with 1909 by 392. The figures for 1910 are the lowest which have been obtained since 1875, that is, since the establishment of the Prussian statistical bureau. Still even in 1910, 60,479 persons died of tuberculosis in Prussia; 31,090 males and 29,389 females. Of the different ages those between 30 and 40 afford the greatest number, namely, 5,242 men and 5,572 women. The greatest rate reckoned for 100,000 living is shown by the age group from 50 to 60; of these 30.84 men and 16.89 women died. With reference to 100 deaths the greatest number of tuberculosis cases occurred between the ages of 20 to 25 years, that is, 41.69 men and 47.00 women. The relatively marked reduction of tuberculosis mortality in infancy is notable; there were in 1910 reckoned for 100,000 living, 20.92 deaths as opposed to 20.68 in the year 1909 and 26.68 in 1908. The entire number of infants who died of tuberculosis in 1910 amounts to 2,267.

Comparative Experiments with the Roman and German Print and Handwriting

In the active discussion of the advantages of the Roman and German scripts now going on, Professor Groenouw, the Breslau ophthalmologist, has made an interesting contribution. He undertook experiments by which he endeavored to answer the question which of the two scripts is easier to write or read, in order to obtain a more reliable basis than the previous subjective observations and impressions could give. The most varied series of experiments were arranged by which two different texts of a story, one printed in Roman and the other in German type were submitted. From this was shown that in a dictation lasting from three to five minutes, thirty-four German and thirty-nine Roman syllables could be written in a minute, that is, 15 per cent. more with the Roman method. One can write as much in the Roman in seven hours as in the German in eight. The persons experimented on were naturally equally accustomed to both forms of writing; with one exception they, as a rule, employed the German writing. Of the dictation matter written in the German handwriting, Professor Groenouw could read 341 syllables to the minute and of the Roman 358, that is, 5 per cent. more. The difference in reading of printed matter was not so marked; in the mechanical reading of a text, out of nine repeated trials the Roman type was read quicker seven times, from nine to fifty syllables more to the minute, but in two trials the German print was read faster at the rate of about seventeen to thirty-nine syllables per minute. In reading aloud, an average of 344 syllables of the German print were read per minute as compared with 365 of the Roman. In general the Roman script is superior to the German with regard to its legibility but only to a slight extent. That it is quicker to write, depends on the fact that it requires fewer strokes of the pen than the other; the German *a*, he says, requires six while the Roman requires only two. In one minute Groenouw could write this letter eighty-two times in German and 120 times in Roman. That the Roman print is read somewhat faster by some persons than the German is referable to a number of reasons, principally to the fact that certain German letters, particularly the capitals, in spite of their complex character, are not so easy to distinguish from each other and therefore require a somewhat longer time for their recognition.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 10, 1911.

A Dental Clinic for School Children

The efforts of a private society, the Austrian Society for the Care of the Teeth, have resulted in the erection of a model institute in the western part of Vienna, which will form the nucleus of a series of similar clinics. This *Schulzahnklinik* is a special small building containing a waiting-room, a surgery, a room for the extraction of teeth, a hall for resting after the operation, and is fitted completely up to date in all respects. It will serve as a dental clinic for the children of five schools, mustering some 4,000 boys and girls, between the ages of 6 and 14. As elementary teaching is compulsory with us, all children must go to school. The examination of the teeth of these youngsters was made during the last two years. Nearly all children in Vienna have thus been seen by several competent dental surgeons, whose reports were the bases which served to justify the action of the above-mentioned society. It has been shown that in the majority of cases there were always carious teeth present; in fact, a child with all teeth healthy was an exception. In the poorer districts, no care at all was given to the mouth and teeth by the parents, while in the wealthier districts the children had their mouths cared for, but not systematically, 28 per cent. of all affected children had one tooth carious, 24 per cent., two teeth, 26 per cent., three teeth, while the remainder had four or more teeth diseased. (No mention is made whether this includes such teeth as had been filled up or stopped, or whether only manifestly diseased teeth were considered.) A collection supported by the medical circles resulted in the provision of funds sufficient for the erection of a clinic, and the services of two able dental surgeons were secured. All children deemed fit by the school teacher will be sent to the clinic to be examined and treated. No fee is paid, but only poor children are treated, while those able to pay are advised to see their regular or another dentist. Within a few years, four more clinics of this type will be completed in Vienna.

Marriages

FRANK PENNYBACKER WHITE HOUGH, M.D., U. S. N., to Mrs. Helen Stewart Spanton of New York City, at Greenwich, Conn., October 14.

JOSEPH TABER JOHNSON, M.D., Washington, D. C., to Mrs. Mary Elizabeth McCann, at New Rochelle, N. Y., October 6.

ERNEST P. MAGRUDER, M.D., Washington, D. C., to Miss MacGregor of Edinburgh, Scotland, October 23.

EDWIN DIAL WATKINS, M.D., to Miss Minnie Bowles James, both of Memphis, Tenn., October 31.

WALTER M. KINGSBURY, M.D., to Miss Mary Elizabeth Lane, both of Malden, Mass., October 10.

SYLVAN H. LIKES, M.D., Baltimore, to Miss Mamie B. Leopold, at Baltimore, October 18.

ROSCOE C. METZEL, M.D., Baltimore, to Miss Daisy L. Hines, at Baltimore, October 19.

ALBERT LOUIS MATHIEU, M.D., to Miss Beulah Akin, of Carlisle, Ind., October 19.

Deaths

John S. Beck, M.D. University of Pennsylvania, Philadelphia, 1868; a member of the American Medical Association, president of the Second Councilor District Medical Society of Ohio; a member of the Mississippi Valley Medical Association; physician and chief of staff of the Miami Valley Hospital; president of the Montgomery County Board of U. S. pension examining surgeons; supreme medical director of the Fraternal Censer; a public-spirited practitioner of Dayton, and a leader in all advance measures for health and sanitation and the safeguarding of the health of the community; died at his home in Dayton, October 19, from cerebral hemorrhage, aged 69.

Albert C. Wedge, M.D. Western Reserve University, Cleveland, 1857; a pioneer practitioner of Minnesota; a member and formerly president of the Minnesota State Medical Association and once president of the Albert Lea District Medical Society; a member of the Minnesota House of Representatives in 1870-1871, and state senator in 1879-1880; surgeon of the Third Minnesota Volunteer Infantry during the Civil War; one of the most prominent citizens of Freeborn County, a man of strong character, and yet genial and lovable; died at his home in Albert Lea, October 23, from pneumonia, aged 77.

Hermann Kiefer, M.D. University of Heidelberg, Germany, 1849; a member of the American Medical Association, and American Academy of Medicine; formerly United States Consul at Stettin, Germany; formerly city physician at Detroit, and president of the Detroit German Clinic; a regent of, and professor emeritus of practice of medicine in the University of Michigan, Ann Arbor; died in Detroit, October 11, three days after a surgical operation, aged 86.

Thomas Crain Evans, M.D. Hospital College of Medicine, Louisville, 1884; former dean and professor of ophthalmology, otology and laryngology of the medical department of Kentucky University, and of the merged medical schools the University of Louisville; a specialist on diseases of the eye, ear, nose and throat; an excellent organizer and a most lovable character; died at his home in Louisville, October 26, from chronic interstitial nephritis, aged 50.

Rufus Dodd Mason, M.D. State University of Iowa, Iowa City, 1887; a member of the American Medical Association, American Proctologic Society and Medical Society of the Missouri Valley; professor of rectal and pelvic surgery in the John A. Creighton Medical College, Omaha; surgeon to St. Joseph's Hospital, Omaha, and consulting surgeon to Mercy Hospital, Council Bluffs, Ia.; died at his home in Omaha, October 18, aged 51.

Benjamin N. Baker, M.D. Pennsylvania Medical College, Gettysburg, 1856; a member of the American Medical Association; a veteran of the Civil War and one of the oldest practitioners in Dutchess County, N. Y.; assistant surgeon of the First New Jersey Volunteer Cavalry and surgeon of the Twenty-Sixth New Jersey Volunteer Infantry during the Civil War; died at his home in Rhinebeck, N. Y., October 19, aged 78.

Louis Harvey Jones, M.D. Tulane University, New Orleans, 1887; a member of the American Medical Association; formerly a resident of Atlanta, and a member of the board of health; professor of chemistry and medical jurisprudence in the Atlanta College of Physicians and Surgeons from 1890 to 1908; formerly secretary and treasurer of the Medical Society of Georgia; died at his home in St. Petersburg, Fla., October 9, aged 53.

Daniel Webster Crouse, M.D. Long Island College Hospital, Brooklyn, 1869; a member of the American Medical Association and a member of the Judicial Council in 1894 and 1897; formerly president of the Iowa State Medical Society; for thirty-seven years a practitioner of Waterloo, and district surgeon of the Rock Island and Illinois Central systems; died in Citronelle, Ala., October 11, from tuberculosis, aged 66.

Robert L. Burrage, M.D. Bellevue Hospital Medical College, New York City, 1878; for twenty-one years a member of the medical staff of the Prudential Insurance Company and for a long time its medical director; who held a conspicuous position among life insurance specialists; died at his home in Orange, N. J., October 29, from valvular heart disease, aged 53.

Elisha Hopkins, M.D. Harvard Medical School, 1854; for more than half a century a practitioner of Searsport, Me., assistant surgeon of the Fourth Maine Volunteer Infantry, and Surgeon of the Fourteenth Maine Volunteer Infantry during the Civil War; died at his home, October 5, aged 82.

Allen George Rennison, M.D. National Medical University, Chicago, 1896; a member of the American Medical Association, and China Medical Missionary Society; medical director of Mapleview Sanitarium; while making a professional call near Sumner, Ia., October 6, was struck by a train and sustained injuries from which he died a few hours later, aged 41.

Henry P. Merriman, M.D. Chicago Medical College, 1865; a member of the Illinois State Medical Society, Chicago Gynecological Society and Chicago Physician's Club; at one time a member of the faculty of Rush Medical College; for forty years a practitioner of Chicago; died at his home in Santa Barbara, Cal., October 18, aged 73.

Charles Herman Mueller, Jr., M.D. Medical College of Ohio, Cincinnati, 1902; of Hyde Park, Cincinnati; aged 33; died at the home of his father in Cincinnati, October 11, from the effects of a bullet wound of the heart, believed to have been self-inflicted with suicidal intent while despondent on account of the ill health of his wife.

James Gass, M.D. College of Physicians and Surgeons, Baltimore, 1891; a member of the American Medical Association; and local surgeon of the Pennsylvania System at Sheffield, Pa., while driving his automobile over a grade crossing at Stoneham, October 22, was struck by a locomotive and instantly killed, aged 48.

George Malvern Ridgway, M.D. University of Pennsylvania, Philadelphia, 1899; of Trenton, N. J.; a member of the American Medical Association; pathologist to Mercer Hospital, and a specialist in diseases of the ear, nose and throat; died at the Eastern General Hospital, Bangor, Me., October 8, from nephritis, aged 37.

Adoniram Judson Matthews, M.D. Medical College of Georgia, Augusta, 1859; a member of the Medical Association of Georgia; surgeon in the Confederate service during the Civil War; local surgeon of the Southern Railway; died at his home in Elberton, February 5, from carcinoma of the face and throat, aged 76.

Julia Hibben Flagg, M.D. Medical College of Indiana, Indianapolis, 1890; a member of the Washington State Medical Association; attending physician to St. Joseph's Hospital, Vancouver; died at her home in that city, June 3, from injuries received in an accident in which she was thrown from a buggy, aged 46.

Anthony Miller, M.D. University of Louisville, 1879; a member of the Mississippi State Medical Association; a member of the board of trustees of the Mississippi Charity Hospital for several years; recently elected senator from Sharkey County; died suddenly at his home in Rolling Fork, October 7, aged 56.

Carl Crisand, M.D. New York Homeopathic Medical College, New York City, 1884; surgeon to the Worcester (Mass.) Hahnemann Hospital and president of the Worcester Oratorio Society; died at the home of Dr. J. E. Willis in that city, September 30, from cerebral hemorrhage, aged 53.

Albert J. Franklin, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1876; a member of the American Medical Association; a pioneer practitioner and for several terms coroner of Faribault County, Minn.; died at his home in Blue Earth, October 9, from cerebral hemorrhage, aged 69.

Lee Smith, M.D. Rush Medical College, 1856; for many years a member of the American Medical Association and for more than half a century an honored practitioner of Bloomington, Ill., one of the old-time family physicians; died at his home in Bloomington, October 16, aged 79.

Jansen Beemer Mattison, M.D. Bellevue Hospital Medical College, 1867; formerly a member of the Association for the Cure of Inebriety and the New York Academy of Medicine and medical director of the Brooklyn Home for Habitués of Opium, Chloral and Cocain; died September 26.

George Holman Snead, M.D. University of Virginia, Charlottesville, 1855; a member of the Board of Conscripts in the Confederate service during the Civil War; who, after several years of practice, became a clergyman; died at his home in Fork Union, Va., July 1, aged 79.

John A. Osborne, M.D. Medical College of Indiana, Indianapolis, 1879; a member of the Indiana State Medical Association; of Pittsboro; died at the Deaconess Hospital, Indianapolis, March 1, after an operation on the prostate gland, aged 69.

James Burke, M.D. Rush Medical College, 1887; of Gillett, formerly of Manitowoc, Wis.; a member of the American Medical Association; died at his old home in Wayside, Wis., October 12, from spinal disease, aged 55.

Oliver J. Gray, M.D. University of Maryland, Baltimore, 1902; a member of the Delaware State Medical Society; died at his home in Wilmington, September 29, from pneumonia, aged 31.

Charles Frederick Patterson, M.D. Dartmouth Medical School, Hanover, N. H., 1896; a member of the American Medical Association; died at his home in Rye, N. H., October 17, aged 44.

William Newton Enochs, M.D. Vanderbilt University, Nashville, Tenn., 1888; for several years physician of Carroll County, Tenn.; died at his home in Huntingdon, October 14, aged 46.

David A. Thompson, M.D. Medical College of Ohio, Cincinnati, 1868; a veteran of the Civil War; died at his home in Elizabethtown, Ind., October 17, from heart disease, aged 67.

Robert Boyd Cabell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1883; formerly of De Witt, Mo.; died at his home in Dolores, Colo., October 4, aged 64.

Jerome D. Bruce, M.D. Jefferson Medical College, 1856; of Sanford, Fla.; a member of the Florida Medical Association; died in Jacksonville, September 28, aged 75.

John W. Baker, M.D. Memphis (Tenn.) Medical College, 1901; of Prescott, Ark.; died in a hospital in Fort Worth, Tex., June 24, from nephritis, aged 37.

Hal B. Canine, M.D. University of Louisville, 1889; died suddenly at his home in Watertown, N. Y., October 1, from acute gastritis, aged 55.

Estrow B. Crow, M.D. Starling Medical College, Columbus, O., 1865; died at his home in Ridgeway, O., October 12, aged 77.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

"ELECTRO-RADIO" FAKERS

They Tried to Buncombe Buncombe, But Failed

The following communication, to which reference is made in the editorial department of this issue, shows what may be done by an energetic county medical society to protect the public from frauds. It is sent in by a committee appointed by the Buncombe (N. C.) County Medical Society:

"A group of men calling themselves 'doctors' and going by the names of Whittam, Smith and E. D. Brantley, located in Asheville, N. C., about July 1, 1911. They rented a suite of offices, fitted up with handsome furniture (bought on time), and commenced running a series of highly colored advertisements in both local papers of their offices, equipment and skill. In the 'classified' columns they also advertised for a physician registered in North Carolina.

"By their 'wonderful equipment' and 'astounding skill' they asserted they could cure all diseases without the aid of a surgeon's knife or medicine. Their offices soon became crowded, and it was generally understood that they were extracting large sums of money from their patients for the guaranteed cure of everything from paralysis to a run-down feeling. It furthermore became known that they were giving medicine.

"A committee was appointed by the Buncombe County Medical Society to investigate their merits or demerits. The first few days were fruitless, and by legal authority we were informed that unless we could show that they were giving medicine, they could continue their fraudulent practice under the guise of electricity and radium.

"At this time in the August 19, 1911, issue of THE JOURNAL of the American Medical Association there appeared a timely article in the 'Propaganda for Reform' department on 'Mayr's Wonderful Stomach Remedy, Another Fake Gall-Stone Cure.' This seemed to fit some of the cases which they were purporting to cure of gall-stones. After searching around a few days we found a reliable witness, who had received the 'gall-stone treatment,' as described in the above-mentioned article. [The 'treatment' here referred to consists essentially in giving the victim a massive dose of olive oil, followed by a saline. The patient is made to believe that the soapy concretions, that are discharged following this procedure, are gall-stones. —ED.]

"Warrants were then issued for these 'doctors,' charging them with giving medicine without a license and doing a fraudulent practice. It seems that they had been unable to secure a licensed physician. Had they been successful, I doubt if they could have been prosecuted.

"In the process of serving warrants these 'doctors' duped the officer; and, as he returned to headquarters for more information, they hurriedly left their offices and 'skipped town.' The committee was rewarded, however, as the daily newspapers wrote up the exposure, and there was no attempt on the part of the experts to return. By ridding Asheville, however, they will be thrust on another unsuspecting public, and we hope that by calling attention to this prosecution in THE JOURNAL they will be caught and prosecuted elsewhere.

"The newspaper and various creditors secured writs for their equipment, which was found to be the cheapest of electrical appliances, and some of the patients were able to attach a portion of their fat bank account. It is believed that, in a few short weeks, they extracted several thousand dollars from our innocent townspeople.

"The Buncombe County Medical Society directed that we send to THE JOURNAL of the American Medical Association the above report, hoping that its appearance in the pages of THE JOURNAL will apprise other communities.

"The committee suggests that it is high time some legislative action be taken for the protection of the public against the exploiters of fake electrical methods of treatment. It is thought by our legal authority that the making of a diagnosis, giving an opinion, applying electrical treatment and charging a fee really amounts to the practice of medicine, and that it should be in licensed hands.

"We further call the attention of the profession to the fact that most of these advertising electric concerns do, as a matter of fact, give drugs, and it is no wonder that electrotherapeutic methods are in such disrepute with the laity, since any faker can legally use them.

"The committee desires to acknowledge the value of the investigations of fraudulent practices that are now being propagated by THE JOURNAL, and to call attention to this specific instance.

"C. V. REYNOLDS, M.D., Chairman,
"A. W. CALLOWAY, M.D.,
"EUGENE B. GLENN, M.D.,
"Committee."

CONVICTIONS UNDER FOOD AND DRUGS ACT*

(Concluded from page 1374)

ROYAL LITHIA WATER

William H. Anderson of Waukesha, Wis., sold another of the so-called lithia waters, which contained an unweighable quantity of lithium. It was labeled as a cure for rheumatism, gout, dropsy, etc. It was very evidently misbranded; a charge to which the defendant pleaded guilty and was fined $25. —[*Notice of Judgment, No. 1042.*]

RADIO-SULPHO CANCER CURE

This impudent fraud, which has already been exposed in THE JOURNAL,[1] was exploited by one Philip Schuch, Jr., of Denver. He also sold, as an accessory, a nostrum which he called Radio-Sulpho-Brew. Radio-Sulpho was an alleged cancer cure; Radio-Sulpho-Brew a "Blood Purifier." Analyzed by the government chemists, Radio-Sulpho was found to consist of a solution of sulphur and sodium hydroxid in water. In this connection it will be remembered that the Colorado state chemist characterized this malodorous combination as "a bad smell capitalized for a million dollars." Radio-Sulpho-Brew was found to be essentially nothing more than a solution of

* Descriptions of ninety convictions previously reported in popular form in THE JOURNAL are issued as an illustrated pamphlet, entitled "Convictions," price 6 cents.

1. THE JOURNAL A. M. A., Dec. 3, 1910; also "Nostrums and Quackery," pp. 68-70.

epsom salts. Both of these nostrums were declared misbranded on the grounds that they did not possess the therapeutic virtues claimed for them, neither did they possess radium or radio-active properties as their name would indicate. Schuch, Jr., pleaded not guilty but the jury held differently.—[*Notice of Judgment, No. 1049.*]

LA SANADORA

Benigo Romero was the romantic name of a "patent medicine" exploiter who did business under the firm name of the Romero Drug Company in Las Vegas, N. Mex. La Sanadora was evidently sold chiefly to Mexicans, for the label was in Spanish. It was said to cure various things from "rheumatism" to "rump ache" and "twitching eye-brows" to "cholera." Analysis showed it to contain among various things:

Opium.	Oil of peppermint.
Alcohol.	Ammonium hydroxid.
Chloroform.	Water.

It was declared misbranded on two counts. First, because the label contained no statement of the amount of alcohol, chloroform and opium in the mixture; and second, because the product would not cure the various ailments claimed. Romero pleaded guilty to the first count and was fined $50. The second count was dismissed on motion of the United States attorney.—[*Notice of Judgment, No. 1076.*]

TUCKER'S ASTHMA SPECIFIC

This nostrum has been exposed at various times in THE JOURNAL.[2] It is exploited by a Dr. Nathan Tucker, Mt. Gilead, O. It contains cocain and is said to be a "specific for asthma, hay fever and all catarrhal diseases of the respiratory organs." The government declared the stuff misbranded on two counts: (1) It contained cocain and the label bore no statement of the quantity or proportion of this drug; (2) it was not a specific. Tucker pleaded not guilty, but the jury before whom the case was tried declared him guilty on the first count. Tucker's lawyer filed motions in arrest of judgment and for a new trial but both motions were overruled by the court and Tucker was fined $150 and costs.—[*Notice of Judgment, No. 1077.*]

PEEBLES' EPILEPSY CURE

This nostrum is exploited by a concern called "Dr. Peebles' Institute of Health" at Battle Creek, Mich. The treasurer and general manager of this so-called institute is W. T. Bobo, M.D., a quack who advertises to cure goiter. Peebles' so-called cure consists of two preparations, his "Brain Restorative for Epilepsy and All Diseases of the Brain and Nervous System" and his "Nerv-Tonic for the Blood and Nerves." Analysis by the Bureau of Chemistry showed that the "Brain Restorative" was a solution of ammonium, sodium and potassium bromids with an alcoholic preparation of valerian, flavored with bitter almonds. "Nerv-Tonic" was a sweetened watery-alcoholic solution of vegetable products containing no material having distinctive, active characteristics. The stuff was declared misbranded because of the falsity of the therapeutic claims. The company, by its treasurer, filed a plea of *nolo contendere* and was fined $5.—[*Notice of Judgment, No. 1079.*]

DETCHON'S RHEUMATISM CURE

I. A. Detchon of Crawfordsville, Ind., sold two nostrums called respectively, "Dr. Detchon's Relief for Rheumatism" and "Dr. Detchon's Relief for Rheumatism Tablets." Both of these preparations were formerly sold under the name "Mystic Cure" and "Mystic Cure Tablets," respectively. False, misleading and extravagant claims were made for both these products such as to constitute misbranding. Analyzed by the government chemists, "Dr. Detchon's Relief for Rheumatism" was found to consist essentially of sodium salicylate, sugar and water, while "Dr. Detchon's Relief for Rheumatism Tablets" was found to consist principally of sodium salicylate. Detchon pleaded guilty to the charges and was fined $200 with costs.—[*Notice of Judgment, No. 1091.*]

2. THE JOURNAL A. M. A., Aug. 4, 1906; Aug. 28, 1906; March 16, 1907; Jan. 2, 1908; March 14, 1908; May 20, 1911; see also "Nostrums and Quackery," pp. 314-316.

DR. LINDLEY'S EPILEPSY REMEDY

This nostrum which was exploited by one A. K. Hollowell under the alias New Vienna Medicine Company, was sold as a cure for epilepsy. Some of the claims made for it were:

"Produces perfect cures."
"May be taken as long as required without any fear of harm."
"A Positive Remedy for Epilepsy, Fits, Spasms, Convulsions and St. Vitus' Dance."

Analyzed by the Bureau of Chemistry, the "remedy" was found to be a solution of bromids in water and alcohol. It was declared misbranded both because of the falsity of the therapeutic claims and because the proportion of alcohol was not given on label. The defendant pleaded guilty and was fined $200 and costs.—[*Notice of Judgment, No. 1093.*]

Correspondence

Object-Lessons on Venereal Disease

To the Editor:—In view of the recent papers and discussions on the subject of venereal disease (THE JOURNAL, Sept. 23, 1911, p. 1052) and the excellent exposé of the Interstate Remedy Co. (THE JOURNAL, Oct. 7, 1911, p. 1222), it may be of interest to describe some of the details of perhaps the first evidence, on a large scale, that far-sighted business men are awakening to the importance of the popular teaching of hygiene, and especially of combating venereal disease.

The National Cash Register Company, of Dayton, O., has about 6,000 employees in its factory. A welfare department is maintained in the interests of the employees, and every man and woman must undergo a medical examination before going on the pay-rolls; venereal disease, if detected, at once bars an applicant from employment.

In spite of the unusual precautions, the officers of the company have long felt that their factories have nearly their full quota of gonorrhea and syphilis, and this last summer it was determined to secure the best possible series of object-lessons for the instruction of their men. The text-book plates usually used for this purpose were discarded and the slides for the lectures were made from actual life and were then colored by an artist from life, many weeks being spent on this alone and every phase of the venereal diseases being reproduced with startling faithfulness.

To make the subjects still more real, a moving-picture-in-color process was used; the films, machines and operator were imported and many venereal victims were taken in motion, removing their bandages, etc., and showing the terrible results of the disease in the most striking way, the natural colors being reproduced by photography. The subjects really seem to live, breathe and move before the audience.

For the practical protection of the auditors several fakes are exposed and their methods explained, among them being the subject of the article in THE JOURNAL, October 7.

It is the purpose of the National Cash Register Company to give these lectures repeatedly in their new auditorium during working hours, the employees hearing them in detachments of about a thousand at a time, and receiving full wages while they are attending. The officers are convinced that this will eventually pay them in dollars and cents, though the lectures have already cost several thousand dollars to prepare and the wages of the men, while hearing them, will amount to several thousand more.

Other lectures on the simple physiology of digestion, respiration and circulation, etc., with practical application to the selection of wholesome foods, the prevention and care of tuberculosis, the patent medicine frauds, etc., are now being prepared in the same elaborate manner and will be presented in a similar way during the winter.

This company believes that it pays to be well and keep well, and that a workman unhappy internally is an economic loss externally—and it apparently has the courage of its convictions.

F. M. LOOMIS, Ann Arbor, Mich.

The Use of Bismuth and the X-Ray in Diagnosing Diseases of the Alimentary Tract, Etc.

To the Editor:—In May, 1899, I read, before the Chicago Medical Society, a paper entitled, "Original *X*-Ray Work and Its Value to Stomach Diagnosis," which was published in the *Philadelphia Medical Journal*, Aug. 26, 1899. THE JOURNAL commented on it Sept. 2, 1899. At that time I said, speaking of the *x*-ray: "I am within bounds when I say that the prevailing idea with the general practitioner has been that it is only of value to the surgeon . . . however, it is possible to recognize new growths, deformities, malformations, variation in the density of bone . . . calcareous infiltrations of various organs or tissues. . . . Some months ago I became convinced that I could make use of the *x*-ray in my special study of the stomach and alimentary tract, and later I made a study of the other cavities of the body. It is my pleasure to present to you the result of my experiments as to method, technic and apparatus, with brief reference to its value in stomach diagnosis. My claim is that the work is original, that the value of the method of examination is far in advance of any that we have heretofore used. By it the stomach can be definitely outlined, giving its size, shape and position. It is also possible to examine the transverse colon, fistulous tracts, uterus or bladder. This is accomplished by filling the stomach, cavities or tracts with what I have termed my bismuth emulsion. The bismuth emulsion is non-toxic, non-irritating and can be made antiseptic making it possible to fill any accessible cavity. In preparing for the skiagraphic examination . . . the stomach can be filled with the bismuth emulsion, using enough to bring the organ to the point of complete distention. . . . With the fluoroscope you will be able to note the outlines of the stomach, showing the lesser curvature. . . . The stomach can be studied from different views, . . . giving a definite idea of the normal movements of the organ and enabling us to diagnose motor insufficiency. . . . Radiographs of the stomach are unsatisfactory, because its normal movements, combined with the change in its shape and position produced by respiration [we had to expose twenty minutes at that time] makes it impossible to produce a clear outline on photographic plates. The best work is done with the fluoroscope."

In looking over medical literature I find that Rieter of Munich makes the claim that he was the first to have used this means of stomach diagnosis. This was in 1904, five years after the publication of my paper.

In January, 1908, E. G. Beck of Chicago, makes the claim to have been the first to have used the method of diagnosis in cases of fistula. Satterlee and LeWald in THE JOURNAL (Oct. 14, 1911, p. 1255), in speaking of *x*-ray examinations of the gastro-intestinal tract say that the method of employing some insoluble substance such as bismuth, etc., will soon be universally used.

WALTER B. METCALF, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TARIFF ON SURGICAL INSTRUMENTS

To the Editor:—Is a physician returning from a trip abroad compelled to pay duty on surgical instruments purchased for his personal use? N. S.

ANSWER.—This question was referred to the Treasury Department, Washington, D. C., and the following reply was received from James F. Curtis, the assistant secretary:

"Paragraph 709 of the tariff act of Aug. 5, 1909, provides that in the case of residents of the United States returning from abroad, all wearing apparel and other personal effects taken by them out of the United States to foreign countries will be admitted free of duty without regard to the value thereof, on their identity being established. Under this provision of Paragraph 709, physicians who are residents of this country would be entitled to bring back with them free of duty all surgical instruments taken by them from this country, provided that such instruments are not advanced in value or improved in condition while abroad. If any repairs are placed on these instruments while abroad, duty would be assessed on the value of such repairs only.

"The Board of United States General Appraisers in T. D. 30,270 of Jan. 13, 1910, following the decision of the United States Circuit Court of Appeals in U. S. vs. Bernays (158 Fed. Rep. 792), held that only such articles as were in the nature of wearing apparel and similar personal effects necessary or appropriate for the use of the persons having the same in possession for the purpose of the journey, might be included within the exemption of $100 allowed under Paragraph 709 to returning residents of the United States.

"The department's former construction of the said paragraph permitted such residents to bring back with them, free of duty, articles to the value of $100 acquired abroad with little regard as to the character thereof, but subsequent to the board's decision above referred to, this practice was changed to conform to such decision. Surgical instruments purchased abroad by physicians cannot be included within this exemption unless they are necessary and appropriate for the purposes of the journey and for personal comfort and convenience.

"Surgical instruments if composed wholly or in part of metal would probably be dutiable under the provisions of Paragraph 199 of the said act at the rate of 45 per centum ad valorem. Surgical scissors would be subject to duty as scissors under Paragraph 152 as follows: valued at not more than 50 cents per dozen, 15 cents per dozen and 15 per centum ad valorem; valued at more than 50 cents and not more than $1.75 per dozen, 50 cents per dozen and 15 per centum ad valorem; valued at more than $1.75 per dozen, 75 cents per dozen and 25 per centum ad valorem. Other surgical instruments would be dutiable under appropriate paragraphs of the tariff according to the component material of chief value."

STROPHANTHUS TINCTURE TENDS TO DECOMPOSE IN WATER

To the Editor:—In your interesting department of therapeutics, in the series you have been printing on prescription writing, I find under the head of "Incompatibility," October 14, page 1289, the following statement: "Strophanthus in the form of the tincture should not be prescribed in solutions containing water. It slowly forms a toxic substance when in water solution. I ask for further information, as this chemical action is not familiar to me.

N. D.

ANSWER.—We quoted this from Osborne's book on "Materia Medica and Pharmacology," ed. 1906, p. 92. The tincture of strophanthus may deteriorate even when undiluted. When diluted with water, fermentation takes place, and decomposition, souring and cloudiness soon occur. The tincture of digitalis, for instance, will stand much greater dilution and will keep for a much longer time than will the tincture of strophanthus without deterioration. The official strophanthinum is a glucosid or a mixture of glucosids, and is probably not often a single active principle, although a crystalline strophanthin has been separated and can now be obtained. This mixture of glucosids in the strophanthus of the official tinctura strophanthi seems to undergo changes when diluted with watery solutions and allowed to stand in an ordinary medicine bottle. It has been stated that such solutions have produced poisoning, although the term poisoning may be a little strong. As to the cloudiness caused by the addition of water to tincture of strophanthus, it is quite probable that this is due to the fixed oil which strophanthus contains; the seeds are stated to contain 30 per cent. of such an oil, as well as kombic acid.

METHOD OF APPROXIMATE ESTIMATION OF INDICAN IN URINE

To the Editor:—I noticed in THE JOURNAL (Oct. 21, 1911, p. 1386), a request for a method of quantitative estimation of indican in the urine. About ten years ago I suggested a very simple and fairly accurate method.

To 10 c.c. of the urine add 1 c.c. of a solution of lead acetate (25 per cent.) and filter through a double filter. To the filtrate add an equal volume of Obermayer's reagent (2 gm. of ferric chlorid to the liter of strong hydrochloric acid) and 2 c.c. of chloroform. Invert the tube several times, until the coloring of the chloroform assumes maximum intensity. If only a slight coloration appears the amount of indican is very small, and further testing would be useless. If the indican is present in appreciable amounts, however, add from a dropper, drop by drop, a solution of potassium chlorate (34.6 gm. per liter) until the color is discharged. The number of drops of the chlorate solution required to discharge the color may be taken as an index of the amount present. Normally, one to two drops are sufficient.

A. ROBIN, Wilmington, Del.

AVOID OILS AND ALCOHOL IN HOOKWORM TREATMENT WITH THYMOL

To the Editor:—For the treatment of hookworm disease I find that Osler's "Practice of Medicine" gives dangerous advice. The editions of 1900 and 1907 advise castor oil, and the 1907 edition, whiskey or brandy. A. C. FISHER, Emmerton, Va.

COMMENT.—An examination of the editions referred to shows that our correspondent is correct. We also find this dangerous advice given in the 1911 edition. Although we have called attention to this danger previously in the columns of THE JOURNAL, it is well to speak of it again. The danger to which our correspondent refers is that the thymol which has been given to kill the hookworm parasites may dissolve in the oil or alcohol, and then be absorbed by the body with more or less toxic—perhaps serious—effects. All oils and alcohol are to be scrupulously avoided until the thymol has passed out of the intestinal canal.

ELIMINATE THE TERM "ALLOPATH"

To the Editor:—In support of the committee of the Fulton County (Ga.) Medical Society, I beg to say that the word "allopath" was invented by Hahnemann, as was the epithet "old school" invented by so-called "eclectics," to apply to regular practitioners. See Webster's Unabridged Dictionary. Both epithets are used almost exclusively by irregulars and their friends.

A. G. FIELD, M.D., Des Moines, Iowa.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Oct. 28, 1911.

Banister, W. B., lieut.-col., Oct. 20, in charge chief surgeon's office, central division.

Sheep, W. L., lieut., granted leave of absence for twenty days, about Oct. 20, 1911.

Stone, F. P., dental surgeon, reports arrival Oct. 16, 1911, Fort Morgan, Ala., for temporary duty.

Hart, W. L., captain, arrived at San Francisco, Oct. 19, from Manila.

Kean, J. R., lieut.-col., Oct. 23, reports departure from Washington, D. C., en route to Paris, France, to attend the International Sanitary Conference to meet there Nov. 7, 1911.

Kerr, R. W., lieut., ordered to Fort D. A. Russell, Wyo., at expiration of leave of absence.

Koyle, F. T., M.R.C., when *Kilpatrick* goes out of commission will return to his station, Fort H. G. Wright; arrived Oct. 24, 1911, for duty.

Sheep, W. L., lieut., left Fort Ethan Allen Oct. 20 on leave of absence for twenty days.

Wing, F. F., dental surgeon, Oct. 19, arrived at Fort Lincoln for temporary duty.

Pascoe, J. B., M.R.C., Oct. 20, returned to Fort Wood from leave of absence.

Chase, C. L., M.R.C., Oct. 19, left Fort Oglethorpe, Ga., for duty at Fort Dade, Fla.; arrived Oct. 22, 1911.

Kerr, R. W., lieut., Oct. 18, on leave of absence for two months; relieved from duty on transport *Sherman*.

Lewis, W. F., major, Oct. 16, returned to presidio, Monterey, Cal., from leave of absence.

Page, Henry, major, Oct. 15, arrived at San Francisco Oct. 16 on leave of absence for four months.

Pinkston, O. W., captain, leave already granted him is extended fifteen days.

Pariseau, G. E., lieut., detailed as member of the board at Panama to examine candidates for second lieutenant, Philippine scouts, vice Mason, C. F., lieut.-col., relieved from above board.

Maynard, E. B., M.R.C., reports his return to San Antonio, Tex., Oct. 21, from leave.

Griffin, A. M., M.R.C., Oct. 22, arrived at Fort Riley for duty.

Voorhies, H. G., dental surgeon, Oct. 21, returned to Jefferson Barracks, Mo., from leave of absence.

Gentry, E. R., lieut., relieved from d.. / at Fort Leavenworth, Kan., in time to take transport to sail from San Francisco Dec. 5, 1911, for the Philippine Islands, for duty on the board for the study of tropical diseases.

Lynch, Charles, major, will proceed to Pittsburgh on special duty in connection with the American Red Cross, and on its completion will return to his station in this city.

Boehs, C. J., M.R.C., Oct. 21, arrived at Fort Banks for duty.

Ingalls, R. E., dental surgeon, will leave Fort Douglas, Utah., Nov. 1, for Forts Yellowstone, W. H. Harrison and Missoula.

Richardson, W. H., captain, relieved from duty in the Yosemite national park and ordered to return to his station, Fort Miley, Cal.

Hart, W. L., captain, Oct. 22, arrived at Fort Sam Houston, Texas, for duty.

Shockley, M. A. W., major, Oct. 24, reports his arrival at Fort Niagara, N. Y., for duty.

The following named medical officers are assigned to and ordered to join the station set opposite their names: Foucar, F. H., lieut., Fort Du Pont, Del.; Whitham, J. D., lieut., Fort Monroe, Va.; Clark, A. P., lieut., Fort Williams, Maine; Willis, J. M., lieut., Fort Snelling, Minn.; Coulter, J. S., lieut., Amb. Co. 3, Fort Leavenworth, Kan.

McAlister, J. A., dental surgeon, on completion of his duties at Fort Bliss will proceed to San Antonio, Texas, to prepare his dental equipment for shipment and then return to his station, Fort Leavenworth.

Hill, F. R., lieut., granted leave of absence for one month, about Nov. 1, 1911

Society Proceedings

COMING MEETINGS

Am. Assn. for Prevention of Infant Mortality, Chicago, Nov. 16-18.
American Public Health Association, Havana, Cuba, Dec. 4-9.
Southern Medical Association, Hattiesburg, Miss., Nov. 14-16.
Southern Surg. and Gynecol. Assn., Washington, D. C., Dec. 12-14.
Western Surg. and Gynecol. Assn., Kansas City, Mo., Dec. 18-19.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Annual Meeting, held at Nashville, Oct. 17-19, 1911

(Continued from page 1479)

Diagnostic Aids in Surgery of the Renal Pelvis and Ureter, with Special Reference to Pyelography

DR. W. F. BRAASCH, Rochester, Minn.: Radiography, cystoscopy, meatoscopy and ureteral catheterization are valuable aids in diagnosis, but may give an erroneous impression and often be insufficient. With pyelography one may be able to demonstrate changes in the outlines of the pelvis and ureter which accompany most surgical conditions of the kidney and ureter. Hydronephrosis may be accurately determined by the pyelograph. It is particularly valuable with small distention and with marked constriction of the ureter. By using these data one is able to identify renal shadows by inflammatory changes seen in the pelvis and ureter. Stone in the ureter is recognized by the mechanical dilatation above it. Deformity caused by tumor of the kidney may be demonstrated in about two-thirds of the cases. There is not as yet a widespread adoption of the pyelograph, largely because of a lack of technical facility. There is never permanent injury resulting from its use.

DR. JOHN T. GERAGHTY, Baltimore: We have used this method of examination for about a year and a half, and have found it of the greatest value in a certain class of cases. It gives a most graphic and striking illustration of the stomach, dilatation of the calyx, twists of the ureter, etc. So far as the kidney and pelvis itself are concerned, we have not been able to get as much information from it as Dr. Braasch has. With the use of the ureteral catheter, with the employment of the pyelograph to estimate the renal function, and with the chemical and microscopic characters of the urine, we can place kidney surgery on just as accurate a plane as any other branch of medicine or surgery.

Diagnosis of Prostatic Obstruction

DR. BRANSFORD LEWIS, St. Louis: I consider the following features as essential in a diagnosis of such conditions, not only for the analytical study of the case, but as a working basis for treatment: 1. Hypertrophy or not? 2. If so, is it causing obstruction? 3. The amount of obstruction so produced. 4. The form and nature of the condition producing the obstruction. 5. The physical and functionating condition of the allied organs, particularly kidneys and cardiac system.

All of these points should be considered and determined accurately before attempting to decide as to the treatment or operation, except for such measures as emergency treatment may call for to relieve acute retention or sepsis, etc.

Cancer of the Prostate

DR. ROBERT C. BRYAN, Richmond, Va.: Primary cancer of the prostate may follow one of two general types, namely, the scirrhous and the glandular. Cancer is not infrequently associated with beginning hypertrophy, may originate in a normal and atrophic gland, or in an organ which has been the seat of a chronic prostatitis. One lobe or the entire gland may be involved. The infiltration may form foci so small as to be detected only by the microscope. Carcinoma of the prostate does not result as a degeneration of a previously benign adenomatous process. In every case of senile prostatic hypertrophy the fact of the possible existence of carcinoma must be borne in mind. The prostate itself causes no symptoms in the early stages of carcinoma; the subjective symptoms are given out by the bladder and pelvic organs. The invasion of the disease is so gradual, and the symptoms modified so progressively, that there is an unconscious adjustment of the patient to the condition. The treatment is divided into preventive and curative. Medical treatment is not to be enter-

tained. There seems to be little virtue in the Roentgen ray, Finsen light or radium therapy. Bilateral castration is the operation of choice. In twenty-two cases of twenty-six operated on, the patients regained the bladder functions. The suprapubic operation is to be condemned as the prostatic urethra comes away and gives an unusually good opportunity for the escape of carcinomatous juices. In the second stage of the disease the operator must base his judgment for surgical attack on the degree and type of pathologic invasion.

The Influence of Stricture of the Urethra on the Development of Hypertrophic Changes in the Prostate

DR. HUGH CABOT, Boston: Stricture of the urethra is markedly antagonistic to the development of hypertrophy of the prostate, owing to the long standing chronic prostatitis which it causes; therefore, no case of stricture of the urethra in later life, in the absence of enlargment of the prostate may be assumed. The recognition of this fact is important in the management of retention of urine in later life; it has not been sufficiently understood. The management of retention of urine due to stricture, and of that due to hypertrophy of the prostate is radically different and each condition has markedly a different prognosis.

DISCUSSION ON PAPERS OF DRS. LEWIS, BRYAN AND CABOT

DR. E. G. MARK, Kansas City, Mo.: We can still further add to the comprehensive diagnosis of hypertrophy of the prostate by means of bimanual palpation. Where we have obstruction, be it from hypertrophy or contraction at the neck of the bladder, we should get away from the idea that the residual urine is increased. In contraction of the vesical neck, we are dealing with a neck below the age of those patients in whom we deal with hypertrophies. We have a compensatory hypertrophy of the musculature of the bladder, and therefore, a lessened residuum.

DR. HENRY J. SCHERCK, St. Louis: It is important to know when to operate in a case of hypertrophy of the prostate. I have seen a number of cases in which a very large prostate which could be palpated through the rectum produced very slight symptoms of obstruction. It is not always a large prostate that causes obstructive symptoms. Not long since I unfortunately removed a man's prostate, thinking the obstruction was due to enlargement of that organ, but the obstructive symptoms did not disappear. Subsequently it was found that this man had arteriosclerosis of the cord, as determined by a neurologist, which produced the bladder symptoms.

DR. WILLIAM N. WISHARD, Indianapolis: The cystoscope may become a clumsy instrument in the diagnosis of prostatic hypertrophy. The prostate changes and increases in size; the urethra is usually elongated; it also has changed its angle, and in the introduction of the cystoscope, whose shaft is straight, the end of the shaft where the window of the cystoscope rests must be passed far beyond the vesical orifice and above the obstruction, or it is hard to get any view at all. The canal which, before the introduction of the instrument, was curved, is now straight and on account of the displacement of the vesical orifice there is produced a certain amount of bulging which is misleading.

DR. W. F. BRAASCH, Rochester, Minn.: I would call attention to the value of urethroscopic examination in the diagnosis of hypertrophy of the prostate. I am in the habit of using a flexible instrument. It is also of value in the diagnosis of carcinoma involving the prostatic urethra. Carcinoma of the prostate in the majority of cases can be diagnosed by rectal palpation.

DR. WILLIAM BRITT BURNS, Memphis: Dr. Cabot has called attention to the lack of enlargement of the prostate in the presence of stricture of the urethra. That is a point that has escaped my attention, and I would like to know how that can be verified. A short time ago I had a patient with a very tight stricture of the urethra. I was not able to introduce the smallest filiform bougie. I resorted to suprapubic cystotomy, and in going through the neck of the bladder and opening the urethra in that direction, I was struck with the size of the prostate and debated for a short time as to the advisability of removing the prostate, but on account of the condition of the patient I did not do so. In that case there was a large and strong annular stricture at the neck of the bladder.

DR. JOHN T. GERAGHTY: I find that carcinoma of the prostate does not arise from a degeneration of the hypertrophied tissue, but it occurs in the portion of the prostate that is left behind. The posterior commissure never undergoes hypertrophy, and you will find there a plateau of tissue when cancer comes, and when associated with hypertrophy you will find cancer on the posterior surface. That is a point of practical importance. When you are doing perineal prostatectomy and have to cut through a dense layer of tissue before you come to the typical hypertrophied lobules, you may be sure you are dealing with cancer because it is the only condition which will give that picture, and it will help us in making a diagnosis if we have not done so before operation.

DR. WILLIAM BILLINGTON, Birmingham, Eng: With regard to the operative treatment of hypertrophy of the prostate, in England the suprapubic method is practiced more extensively than the perineal. Very large, soft, adenomatous prostates can easily be enucleated through a suprapubic incision, and the patients do well. The cases of small carcinomatous prostate, and those with contraction at the neck of the bladder, present grave difficulties if we attempt to enucleate them by the suprapubic route.

Operative Treatment of Gonorrheal Epididymitis

DR. FRANCIS HAGNER, Washington, D. C.: I do not operate in every case of gonorrheal epididymitis, as the milder forms often recover promptly under appropriate expectant treatment. Until operative procedures were resorted to in acute gonorrheal epididymitis very little seemed to have been known of the gross pathologic appearance of this condition. In some cases on exposure of the epididymis multiple abscesses can be distinctly made out before puncture; in others abscesses cannot be made out until punctures are made. Eighty per cent. of my cases have had pus present in the epididymis, varying from a few drops to 1 and 12 drams, and yet the text-books on surgery state that gonorrheal epididymitis very rarely goes on to suppuration.

DISCUSSION

DR. J. W. HANDLEY, Nashville: I have had occasion several times to make incisions in the tunica vaginalis in cases of gonorrheal epididymitis, and have given my patients relief. The ideas Dr. Hagner has advanced in favor of operation are logical and worthy of serious consideration.

DR. HUGH CABOT, Boston: We have operated in about thirty cases by Dr. Hagner's method, with gratifying results. I desire to lay stress on the results to the gonorrheal process by drainage of the epididymis, because it has seemed clear that in a certain proportion of cases—say 25 per cent.—drainage of the epididymis very definitely shortens the attack.

DR. JOSEPH RILUS EASTMAN, Indianapolis: I would like to know whether Dr. Hagner has found the colon bacillus in any of his cases of gonorrheal epididymitis. I have found colon bacilli in abscesses which ensued on what seemed to be a gonococcal epididymitis.

DR. PERRY BROMBERG, Nashville: Shortly after Dr. Hagner described his method in the *Annals of Surgery*, 1908, I tried it in one case, and the relief was so great that I have since adopted it as a routine method. I have done the operation more than twenty-five times, and my results have been excellent.

DR. F. R. HAGNER, Washington: I have not found the colon bacillus in a single case, but I do not deny that it may have been found by others.

Relation of Renal Activity to Surgical Operation

DR. E. O. SMITH, Cincinnati. The success or failure of a major operation depends largely on the activity of the kidneys, of course, barring faulty technic and bad surgical judgment of the operator. The functional activity of the kidneys may be influenced by the shock incident to a major operation, by the anesthetic, by trauma to one or the other kidney, by calculi, or by ureteral obstruction from any cause. There are three distinct periods of every surgical case that require

special care and attention: the preoperative period, the operation and the postoperative period. It is best to make a further study of the functional activity of the kidneys before operation. This is based on the observations that normal kidneys remove from the circulation certain products that have been introduced within a certain time, and that marked deviations from this time represent abnormal kidneys. Operation should be done as rapidly as consistent with good work, for the longer the operation the greater the shock, and the greater the shock the greater the circulatory disturbance, and in consequence of which the blood-supply to the kidney is diminished, a very apparent cause of renal inactivity. Immediately following the anesthetic the patient should be given oxygen inhalation. In old people and bad risks this should be continued for several hours. Hiccough and persistent vomiting following operations are indicative of diminished renal activity and should be looked on as a warning rather than an independent complication calling for special treatment. When anuria does occur, the best treatment is fluid introduced into the veins, sweating and morphin. We have always used saline solutions, but Fischer's solution and alkaline solution are far more effectual.

DISCUSSION

DR. WILLIAM N. WISHARD, Indianapolis: A study of the urine prior to operation, where it is found to be abnormal, is considerably influenced by the various preoperative or preparatory measures to which Dr. Smith has called attention. The specific gravity and the percentage of urea and the general condition of the urine are helpfully influenced by drainage. In a certain class of cases I drain the bladder, where it is possible for two or three days or longer prior to operation. We do not always estimate the importance of shortening the period of anesthesia in its relation to renal function.

DR. HUGH CABOT, Boston: In our practice in the last two years in operations on the prostate, we have used spinal anesthesia as the anesthetic of election where the kidney function was below a fair standard, and many patients have recovered who we feel would not have recovered under general anesthesia. We have used gas and oxygen with excellent results, and in cases of damaged heart that anesthetic is to be preferred.

(To be continued)

MEDICAL SOCIETY OF PENNSYLVANIA

Sixty-First Annual Meeting, held at Harrisburg, Sept. 25-28, 1911
(Concluded from page 1481)

Traumatic Surgery of the Hand and Foot

DR. JAMES JEFFERSON, Johnstown: The most important feature in traumatic surgery of the hand is the care of severed tendons. In suturing tendons, the approximation has much to do with the efficiency of the repair. In subsequent fixation the part must be placed in such position as to avoid tension on the sutures. The best method of treating metacarpal fractures is by a long palmar splint with adhesive strips at the wrist for counter extension, and two strips of adhesive applied to the finger after the manner of Buck's extension. The severely crushed finger should be cleansed thoroughly, the soft structures replaced, and a hot bath of 1 to 4,000 corrosive sublimate applied. There is a great temptation to amputate, but it pays to take time and patience to avoid this. For sprains of the ankle my custom is to apply a plaster cast with the foot at right angles to the leg, and follow this later by strapping, after the method of Gibney.

DISCUSSION

DR. J. STACEY JOHN, Bloomsburg: Roentgen-ray examination in all cases of injuries of the hand and foot should be made to determine if any of the tendons have been severed. If so they should be sutured with catgut.

DR. AMERICUS R. ALLEN, Carlisle: The first thing that deserves consideration in these injuries is conservatism. When there is infection there should be free incision and immobilization. In dressing cases of fracture I use a small splint made of adhesive plaster with a small strip of pasteboard in between, and it answers very well.

Treatment of Backward Displacements of the Uterus

DR. XAVIER O. WERDER, Pittsburgh: A simple uncomplicated uterine displacement rarely justifies operative treatment, because this malposition is usually a harmless condition. When symptoms accompany a uterine displacement we should first carefully search for some pelvic complications which are usually responsible for the disturbances, and in the absence of such affections, carefully examine into the general condition of the patient, and especially look for some manifestation of a disordered nervous system which is often at the foundation of this trouble. When in doubt, as of necessity we often are in this class of cases, a temporary correction of the displacement by means of a well-fitting pessary will often determine whether the cause of the ailment can justly be attributed to the uterus or to some derangement of the general health of the patient. Thus the pessary will often prove a valuable diagnostic as well as therapeutic agent.

DISCUSSION

DR. LOWELL M. GATES, Scranton: While it is true that not all cases of retrodisplacement of the uterus need immediate operation at first, sooner or later they will. In time they will produce symptoms of interference with the proper circulation of the blood in neighboring organs. We must always consider the type of the patient. A phlegmatic woman in the ordinary walks of life will go around for years with a retrodisplacement of the uterus without paying any attention to it, while the neurotic is made uncomfortable.

Secondary Repair of the Perineum by the Emmett Method

DR. HENRY D. BEYEA, Philadelphia: There is much evidence of a tendency to discredit the value of the Emmett operation for secondary repair of the perineum. There is no operation in surgery that is more difficult of understanding or requires more study and surgical skill in its performance than this one. It is essential to practice every detail of the operation as taught by Emmett, even to the needle and suture material. Properly practiced, it is the only anatomically and surgically correct, and the most efficient method of restoration of the injured pelvic floor and the relaxed vaginal outlet.

DISCUSSION

DR. THEODORE B. APPEL, Lancaster: In my work on the perineum the results of the Emmett operation have not been very satisfactory. My object in these cases is to get after the weakest point. I question whether you can do that by the Emmett operation

DR. J. W. LUTHER, Palmerton: It is a mistake to try to apply one operation to all cases. If a distinct sulcus laceration can be demonstrated, the Emmett operation is the operation of choice. There are many cases of relaxation of the pelvic floor either with or without laceration. In these cases, when a distinct sulcus tear cannot be demonstrated, I think the Hegar operation superior to the Emmett.

DR. W. WAYNE BABCOCK, Philadelphia: There is no doubt that Emmett's operation has served a very useful purpose in the development of gynecologic surgery. It is a gynecologic and not a surgical procedure. The relaxed perineum is a condition very similar to hernia. By bringing its walls in apposition we can repair a perineum that is relaxed in just the same way that a hernia is repaired. There is no reason why we should not expose the various layers of tissue and bring them together.

DR. J. M. BALDY, Philadelphia: My own impression has been that an operation is always surgical, providing the man knows how to do surgery. The trouble with those who criticize the Emmett operation is that they do not know how to do it. They show this by their criticism. The fault has been with the gentlemen who have tried to modify the Emmett operation. They have not done the Emmett operation. There is no such thing as a relapsed perineum without a laceration.

DR. R. C. NORRIS, Philadelphia: The Hegar operation is suited only to women who will not again bear children, while the Emmett operation is adapted to child-bearing women. The difficulty lies in the lack of knowledge of the anatomy. We should go back to anatomy and study the anatomic basis of these operations; then we shall learn the true principle involved.

Essentials in Surgery

DR. J. M. WAINWRIGHT, Scranton: Surgeons could very well devote more time to the study of how to avoid operations which must end fatally, how to make all operations more safe, and how to diminish postoperative discomfort. In the ideal stage of surgery there would be no postoperative deaths, which now result either because the operation has been bungled or else because death was inevitable in spite of operation. In the latter case we have deluded ourselves into thinking that the operation would give the patient the last chance, whereas, in fact, all the operation did was to hasten the end. We need to make marked improvements in reference to the question of the safety of operating. We must learn among other things how to avoid influencing the blood-pressure, and also how to use the anesthetic. Something must be done to make convalescence more pleasant. Patients do not get vitally interested in surgical feats performed while under the anesthetic, but they are vitally interested in the discomfort they suffer after the operation.

Estimation of Vital Resistance of Patient with Reference to Possibility of Recovery

DR. J. C. BLOODGOOD, Baltimore: For estimating the resistance of the individual we have very few scientific methods and instruments of precision as compared to those which the engineer possesses. In estimating the factors of vital resistance there are two large problems, one of diagnosis and one of treatment. The patient must be under observation from beginning to end and we must be changing our methods in order to meet the indications. As we have progressed in surgery and eliminated the grosser problems we come to-day to problems of the most minute detail. This relief with recovery depends on the estimation of the vital resistance of the patient before, during and after operation. When we come to estimate the actual factors in the resistance of the individual, science is small as compared to the art. We have to consider, first, the individual; second, the operation; and, third, the disease. Whenever we can estimate that the relief of the burden from the disease is greater than the burden we are going to place on the patient by an operation, the chances for a cure are very great. In regard to anesthesia, my personal experience in the last year has demonstrated that operations can be done under nitrous oxid on handicapped individuals, operations of a greater magnitude with the risk tremendously less than the same operation on the same individual under ether. During the operation the surgeon and the anesthetist work together, estimating the factors of shock, following pulse and respiration, and the surgeon must learn when to stop. There are many operations which do not need to be finished, and, I think, more careful observation will teach us when to stop in some of these operations of greater magnitude on handicapped individuals; we will perform the operation in two or three stages. The higher cortical centers are the least important things concerned as factors of safety.

DISCUSSION

DR. EDWARD MARTIN, Philadelphia: I take exception to the point that the higher cortical centers are the least important ones as factors in the safety of the patient. The ego, the individual aside from the physical, has an absolute dominating control over every function of the body, and by no means is the least important part of the attitude of absolute optimism on the part of the surgeon himself, his assistants and all those professional people who come in contact with that patient. Many a time, where the case was easily balanced, the victory has been won by that optimism and belief in recovery by which the patient has been properly influenced before and after the operation.

DR. HAROLD J. GIBBY, Pittston: One of the most important points, aside from the physical condition, is the temperament of the individual. The individual who resists the anesthetic, who is of a depressed nature, is sure he is going to die, is often a very poor subject. Another thing is the importance of diagnosis—to find out just how much has to be done and how much work can be done at the one sitting.

The Influence of Various Anesthetics in Determining Mortality

DR. GEORGE M. LAWS, Philadelphia: Surgical anesthesia is easy to obtain with chloroform, more difficult with ether, and most difficult with nitrous oxid, and statistics show that their relative safety is in reverse order. At the hospital of the University of Pennsylvania nitrous oxid followed by ether has been the routine anesthetic for years, and a continuance of our favorable result convinces us that ether pneumonia can be eliminated by proper application of this method. Whether or not a general anesthetic should be given when shock is present depends largely on an accurate estimate of the psychic element. The horror of ether is one of the greatest obstacles to modern surgery, as it leads the patient to defer operation. Therefore an anesthetic which is more pleasant to take has much to commend it. Ethyl chlorid has about the same range of utility as nitrous oxid, but its mortality rate, which is distinctly higher than that of chloroform, makes its use rarely justifiable. Nitrous oxid followed by ether given by the drop method overcomes practically all the objections to ether alone.

DISCUSSION

DR. WILLIAM L. ESTES, South Bethlehem: The principal thing in every anesthetic is the person who gives it. This implies that the man or woman of experience will, as a rule, adopt the anesthetic and regulate the quantity of anesthetic with reference to the patient. The next point in giving the anesthetic is the psychic state of the patient. Nephritis, especially the chronic kind, is not a contra-indication to ether.

DR. G. W. GUTHRIE, Wilkes-Barre: I believe in ether, and yet I am satisfied that the ultimate dangers of ether are sometimes overlooked. The drop method is the best method of giving ether.

How Long Should Patients Remain in Bed After Various Operations?

DR. ROBERT T. MILLER, JR., Pittsburgh: We cannot establish any law or precedent that may be safely followed in deciding the question as to how long patients should be kept in bed after operation. It is necessary to eliminate all purposeless effort and have the patient concentrate his whole strength on the problem of recuperation. This means absolute rest in bed. This may be required for two days, two weeks or two months. Exceptions to this are found in the case of elderly people, as regards pneumonia and uremia, both of which conditions may be warded off by postural change.

The Prevention and Treatment of Complications in Gastro-Intestinal Surgery

DR. DONALD GUTHRIE, Sayre: Success in this work depends more on the strict attention to details, which are often regarded by some surgeons as minor and unimportant, rather than on any unusual dexterity which may be displayed in the operating-room. The results of the surgeon who operates on the diagnosis of somebody else and who never sees his patients after operation can never be so good as those of the man who works up his cases for himself, who develops a technic of his own, and who carefully watches and treats such cases during their convalescence. The most common complications after operation on the gastro-intestinal tract in the order of their frequency are shock, acute dilatation of the stomach, pneumonia, adynamic ileus, embolism, fatty degeneration of the liver and peritonitis. In most of the well-managed operating-rooms the giving of an anesthetic is entrusted to a nurse specially trained and not to the youngest intern, who may be more interested in the steps of the operation than in the patient. The man who has a permanent force in his operating-room can do better work in all branches of surgery, especially gastro-intestinal surgery.

DISCUSSION

DR. W. L. RODMAN, Philadelphia: I am sure it would be much better for our patients if the amount of anesthetic given were reduced after the peritoneal cavity has been opened. I have been in favor of female anesthetists for the past ten years because they are more timid and see danger quicker than

a man. I would like to know, however, what would be the legal responsibility of the surgeon whose patient dies on the table while the anesthetic is being given by a trained nurse. I do not think the diploma of a trained nurse allows her to give poisons. The thing that has brought me best results in my work is the administration of morphin and atropin one hour before operation, and the next best thing is postoperative lavage.

DR. CHARLES H. FRAZIER, Philadelphia: I happened to consult a lawyer with regard to the legal status of an official anesthetist, prior to the employment of a female nurse anesthetist at the University Hospital and was assured by him that the hospital authorities were entirely justified in employing her and would not be subject to damage, providing they realized that in the employment of this special anesthetist they were doing it for the best interest of their patient. We should try to have a woman give ether and ether alone. It seems scarcely fair to a professional anesthetizer to have patients brought in to her and have her instructed to give the anesthetic before she has had an opportunity to go over them. She should have a list of patients to be operated on the day before operation so that she may see them, inquire as to the nature of the operation to be performed, look into the history of the case and make some examination, perhaps of the heart or lungs, before the patient is brought to the operating-room for operation.

DR. JOHN B. ROBERTS, Philadelphia: I believe that women do many things better than men, but I believe that all anesthetists should be those qualified to practice medicine; qualified to determine whether the patient has a good or bad heart, whether good or bad kidneys.

DR. CHARLES E. THOMSON, Scranton: I do not believe that all our troubles have ended with anesthetics when we have introduced nurses to administer them, but I think that they are so far advanced, so much better than anything we have ever heretofore enjoyed, that we are making real progress in handing over our anesthetics to trained nurses. I mean nurses who have been trained to give anesthetics.

DR. GEORGE W. GUTHRIE, Wilkes-Barre: As to giving poisons, the nurse is authorized to give hypodermics of atropin and strychnin in the absence of the doctor, whereas the anesthetic is never given unless the doctor is present.

DR. C. J. CUMMINGS, Williamsport: I would not have it go out that a woman can give an anesthetic better than a doctor. I do not believe that should be accepted.

DR. G. E. SHOEMAKER, Philadelphia: This question is a practical one in our hospitals only and does not refer to the trained nurse in general practice giving anesthesia. We cannot get our interns to take enough interest in anesthesia to do it right. We must hire somebody who will stay in the hospital one or two years and give anesthetics alone.

DR. J. C. BLOODGOOD, Baltimore: Anesthesia is the stepping-stone to surgery; every surgeon who operates should have had experience in anesthesia. There is no practical experience which teaches the individual the physiology and the problems of physiology which are of the utmost importance to the surgeon in the treatment of respiration better than anesthesia. I think that men who go into surgery should have their experience of anesthesia, and that the anesthesia in most of the clinics where it is possible should be given by the men who ultimately expect to go into surgery.

What Can be Done to Preserve the Strength of the Patient During His Stay in Bed?

DR. JOHN M. BALDY, Philadelphia: Surgical patients, as a rule, are not sick in the sense, for instance, of a typhoid patient. Therefore, there is little call for efforts for sustaining strength after operation. The effort to force the appetite by drugs only prolongs the loss for an indefinite period. The excretory organs should be got to working actively by means of purgatives and diuretics. With a few exceptions the diet should not be limited, except as to quantity. A patient kept in bed two to four weeks on three full meals a day inevitably suffers from one or two attacks of indigestion. If the surgeon will use good judgment in deciding that an operation is desirable, will prepare his patient well, do his operation properly and pick his nurse carefully, he need not bother much about the after-treatment.

Transfusion

DRS. GEORGE M. DORRANCE and NATHANIEL GINSBURG, Philadelphia: In concealed bleeding within the abdomen or pelvis we frequently wait for the resultant syncope to arrest the bleeding. This too often results in loss of life. Instead of waiting and trusting to uncertainty we advise and practice transfusion. In this way it is possible to render cases apparently inoperable, on account of shock, suitable for operation. Instances of this are met with in gastric or duodenal hemorrhage, in hemorrhage following operation or typhoid or extra-uterine pregnancy.

Commission on Prevention of Venereal Diseases

DR. EDWARD MARTIN, Philadelphia, chairman of this commission, offered on behalf of the commission recommendations that a medical certificate of freedom from veneral or other contagious diseases should be required from the man who contemplates marriage, that one who conveys venereal disease should be punished by a jail sentence, and that provision should be made for foci of infection so that the public may be protected.

The recommendations were adopted by the society and the commission was continued for another year with the same personnel.

Commission on Fractures of the Femur

DR. WILLIAM L. ESTES, South Bethlehem, chairman of this commission, offered on behalf of the commission recommendations that teachers of surgery should give far more attention to the investigation of fractures and to the teaching of this important branch to their students; that while recognizing the fact that roentgenograms may be most misleading, they will, when properly made, furnish an indication for the proper reduction and preservation of apposition of the parts and serve as a graphic record of the fracture itself; that, while treatment by means of traction enables the patient in most cases to resume his occupation without serious detriment, yet roentgenograms show that absolute apposition and restoration of the proper axis of the bone are seldom accomplished; that the open method of treatment introduces such a very marked element of danger that the commission cannot recommend it for general use or recognize it as a routine practice, but that in selected cases it may be employed by an experienced surgeon; that some form of traction, such as Buck's extension, seems to be the preferable method of treatment, though Bardenheuer's transverse traction and Hamilton's apposition splints will serve a useful purpose in the majority of cases; that the usual methods of measurement are very inaccurate, though good functional results are obtained when the shortening is not over an inch, providing there is no inversion or eversion of the foot; that the usual method of measuring should be checked by measuring from the tip of the ensiform cartilage to the internal malleolus or the patella or from the middle of the umbilicus to the internal malleolus; and that in making measurements the pelvis should not be tilted and that the anterior spine should be in the same horizontal plane.

Commission on Cancer

DR. J. M. WAINWRIGHT, Scranton, chairman of this commission, reported on behalf of the commission that county societies have been urged to devote meetings to the study of cancer and that a number have done so; that six short articles adapted to the lay reader have been prepared, and that these will be sent to all the leading newspapers in the state for publication; that from a report of 382 cases of cancer it was shown that only 68 per cent. of superficial cancers and 48 per cent. of deep-seated cancers were operable when they came to the surgeon; that in 39 per cent. of the superficial and 46 per cent. of the deep-seated cancers there had been a precancerous condition or a chronic irritation; that both the patient and physician are to blame for the delay in treating cancer, but that it would seem that the medical profession should be the first to show improvement in this respect.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

WOMEN'S CLUBS FOR BETTER HEALTH

The Public Health Department of the General Federation of Women's Clubs has taken up the systematic study of community health, as one of the regular features of club work. A special circular on this subject has been sent out to all women's clubs by the chairmen of the Public Health Department. This circular contains a program for women's clubs to follow in studying public health questions. It also appears in a recent number of the *Federation Bulletin*.

The significance and value of this campaign on the part of the federation cannot easily be overestimated. Women, as wives and mothers, are forced to bear the heaviest personal burdens that result from sickness in the household. If the women of the country will unite in a vigorous and persistent demand for better public health, they can wield an enormous influence in securing better conditions and in reducing the unnecessary sacrifice of life, now going on.

The attention of physicians is called to this important work. It is specially of interest to the members of state and county committees on legislation and public instruction. Every possible assistance should be given to the women's clubs in this work. In many cities, physicians can be of great assistance by cooperating with the public health committee of the local club, helping to arrange public meetings, to furnish speakers and to enlist the support of their friends and patients. Copies of this circular and program, as well as information regarding the work among women's clubs can be secured by addressing Mrs. S. S. Crockett, Chairman, Public Health Department, General Federation of Women's Clubs, Nashville, Tenn.

"IT IS INFINITELY MORE HUMANE, THAT A FEW ANIMALS DIE IN SCIENTIFIC RESEARCH, WITH LITTLE OR NO PAIN, THAN THAT THOUSANDS OF LITTLE CHILDREN SHOULD LIE ON BEDS OF PAIN AND PERHAPS AT LAST, DIE IN AGONY.

SELECTED TOPICS FOR MONTHLY HEALTH CAMPAIGNS AND CLUB PROGRAMS, 1911-1912

October. Community Health

1. What is meant by community health?
2. What should be done to further the health of a community—(a) in homes; (b) in schools; (c) in factories; in shops; in offices; (d) in streets and alleys; (e) in markets; (f) in the drainage system and disposal of other wastes; (g) in provision of clean air and water.
3. What organizations and other agencies are helping to better the health of our community?
4. What can our club do to further these activities?

November. Social Hygiene

1. What is social hygiene?
2. What parents can do.
3. How mothers can teach.
4. What should be taught in primary schools; what should be taught in secondary schools.
5. Local reports. Has your board of education, has your superintendent, has any individual teacher taken any steps in regard to this subject?
6. What the club can do.

December. Ventilation

1. Why we should ventilate.
2. How to secure ventilation—(a) in homes; (b) in public buildings and conveyances.
3. Reports on local conditions—(a) in homes; (b) in schools; (c) in stores; (d) in factories; (e) in churches; (f) in theaters; (g) in public conveyances.
4. What this club can do about it. (a) Each individual member set a good example by ventilating her own home; (b) arrange lectures before local clubs; (c) print ventilation epigrams on your stationery; (d) agitate against specific local air polluters; (e) in public buildings (and conveyances) already constructed demand the best ventilation possible under existing conditions; where new public buildings are being erected interest architects and builders in installing up-to-date methods.

January. Mouth Hygiene—Teeth Inspection

1. What is oral or mouth hygiene?
2. The relation of the teeth to health; on teeth examination of school children in this community.
3. Reports: On education of children or adults regarding the care of the teeth; are there facts available concerning the condition of the teeth of school children of this community? have the local dentists planned to help this movement?
4. Talk by a local dentist on "How to care for the teeth," with a child to illustrate.
5. Discussion — "What can we do about it?"
6. Committee appointments—plans for doing something.

February. Clean Food

1. Definition—clean vs. pure food.
2. Reading from Mrs. Richards in proceedings of Boston biennial.
3. Requirements for clean lists—sanitary score cards.
4. Local accounts of successful food inspection work.

March. School Hygiene—Medical Inspection—School Nurse

1. What is medical inspection?
2. Review of Gulick and Ayers' book.
3. Beginnings — volunteer work.
4. Follow-up work—the nurse; the teacher; the home.
5. Reports of local conditions—from doctors; from teachers; from nurses; from mothers.
6. Where medical inspection is in vogue in this state—results, if any.

April. Conservation of Vision

1. Prevention of infantile blindness—(a) The cause; (b) how it may be prevented; (1) legislation; press; (2) by education; exhibitions; lectures.
2. Lecture by non-commercial electric engineer on "Prevention of eye-strain by proper lighting—in shops; in offices; in homes; in schools."
3. Local oculist discusses "Prevention of eye-strain by suitable glasses."

Chairman closes the meeting by laying special stress on broad conservation viewpoint in this particular question. Distributes literature furnished by the American Association for the Conservation of Vision, and mentions the conservation of vision day which the association proposes to promulgate in 1913.

May. Infant Mortality

1. The relation of vital statistics to infant mortality.
2. What are the chief causes of infant mortality?
3. How to interest and educate mothers.
4. What every mother ought to know.
5. Reports of local milk-supply.
6. Reports on local institutions.

N. B.—Definitions, suggestions and reference lists prepared by the section chairmen of the health department will appear in each succeeding number of the *Federation Bulletin* (Cannon Place, Troy, N. Y.).

It is respectfully suggested to clubs that, aside from the use of topics as programs for actual meetings, they may also be used for planning meetings elsewere, particularly in trying to get other bodies to use topics, and also for individual study and planning by any interested club women, and also for general suggestion to even the reader who may have but incidental interest, but who may look over the outlines in the club organs.

COMMUNITY HEALTH

Wherever homes are grouped, there exists one supreme common interest—the promotion of the public health. On this depends the happiness and efficiency of the individual, the family and society.

The requisites for public or community health may be loosely enumerated as follows: Clean air, water, food, clean homes, schools, churches, theaters, factories, shops, offices, conveyances, streets and alleys and clean citizens. Cleanliness means absence of filth, whose presence implies disease germs. Transmissible diseases have their origin in filth and are conveyed to an unsuspecting public in buildings, streets and conveyances as well as by water, food and milk. Add to this the part played by flies, mosquitoes and other insects.

The public health movement is coincident with the growth of the science of bacteriology, which makes possible the prevention of most diseases which were wont to have been considered inevitable. This includes the potential elimination of yellow fever and malaria, small-pox, the plague, leprosy, bookworm, typhoid, tuberculosis and all diarrheal diseases; has made possible aseptic surgery and midwifery, and a negligible mortality from diphtheria. The universal acceptance and observance of hygienic principles by the people is the object of the movement.

"A knowledge of danger is the surest way of guarding against it," and this knowledge of the immense effect on the common welfare produced by the destruction of germs before they reach the human body places a vast responsibility on public officials and public-spirited citizens and gives a new meaning to the phrase, "Am I my brother's keeper?" The responsibility for the application of sanitary methods rests on all who constitute that intangible but powerful agency called public opinion, for it is a well-accepted principle that what the majority of people want that will they get.

The fact that certain of our friends are made uneasy by so much talk of disease prevention should not give practical workers for improved health conditions cause for worry—"for the knowledge that certain diseases exist, that they have well-known causes, that they are disseminated by well-understood agents, and that their spread can be prevented by well-tried methods should make for peace of mind, not for worry." And it should be remembered that germs (and the filth-borne diseases) are no respecters of psychologic antagonisms, attacking alike the believer and the disbeliever. And while mental therapeutics is a valuable factor in the treatment of diseases of the nervous system, yet "think health—talk health"—"forget disease" is inapplicable to the germ and its extermination.

The eye of the sanitary world to-day is centered on Dr. W. C. Gorgas, whose work has made possible the construction of the Panama Canal, preceded as he was by Reed, Carroll, Lazear and others who proved the mosquito a carrier of yellow fever and malaria.

Of the agencies, official and voluntary, which are concerned in preventing disease and making life more productive, the first in present interest is the hoped-for National Department of Health which the General Federation endorsed at the Cincinnati biennial.

The object of a national health department is to investigate the causes of disease in general, to collect and disseminate such information, and to coordinate the various governmental agencies affecting public health into one department with an expert at its head.

Such a department would spread throughout the country such authoritative information on the conservation of human beings as the Department of Agriculture now does in the case of cattle. The government might make maps, as it now does to show the "beet belt," for example, showing in Dr. Wiley's words, "where the cancer belt is, where the greatest tuberculosis area is, where the typhoid area lies, what is the area containing men and women of the finest physiques. Such information would be of illimitable value to the nation in any intelligent attempt at the reduction of disease, and would save millions of dollars to the nation now lost by unnecessary sickness and premature death." Of course, a national Department of Health could have no more to do with the individual practice of medicine than the Department of Agriculture has to do with the individual management of a farm. The Constitution of the United States makes this impossible in any of the states.

Those who oppose federal aid in health matters (the most important that could concern a nation), claiming that it will further the interests of any school or cult, fail to catch the real object of the department, which is to "prevent" disease, and concerns itself not at all with any method of treatment.

Perfected federal, state, county and municipal aid and control of health problems is a consummation not only to be wished but worked for, and the obligation of women's clubs, as homemakers and mothers in such efforts, would seem to be clearly defined, for women's clubs have emerged from the self-culture period and reached the stage where they work not only for the welfare of their own homes and children, but "for women other than themselves, for children other than their own."

The only possible discussion of the question revolves around the point of ways and means.

In connection with monthly health programs, submitted for your consideration, as applicable to actual club or committee meetings, your chairman offers the following general suggestions:

CLUBS OR COMMITTEES

1. Should seek to inform themselves about what needs doing, the best way of doing it and the proper organization or department to do it.
2. Should become a center of inspiration in the community and create a "health consciousness."
3. Should seek to spread a knowledge of the best methods among those doing health work.
4. Should plan systematically to get other organizations interested to the end that each take up a particular community need.

Thus the club becomes a coordinating power and helps to form an orderly social program, each in its own community. By cooperating with corresponding national organizers this desirable goal may be reached for the whole United States.

HEALTH DEPARTMENT PROGRAM

The public health department of the General Federation of Women's Clubs asks that all federated clubs unite in a common month-by-month campaign of study and work, and invites all other public-spirited women's organizations to join in the same cooperative movement. The chairman, Mrs. S. S. Crocket, from the headquarters at Nashville, Tenn., announces nine topics for study and "talk," and nine "campaigns of education," to be handled as follows: October, Community Health; "Know Your City" campaign; November, Social Hygiene; Sex Education in Home and School; December, Tuberculosis; Ventilation and Fresh Air; January, Mouth Hygiene; Tooth Inspection Day; February, Clean Food; How and Where to Get It; March, School Hygiene; Medical Inspection; April, Conservation of Vision; Prevention of Blindness; May, Infant Mortality; "Don't Kill Your Baby"; June, Food Sanitation; Needless Summer Dangers.

The entire health machinery of the American Federation of Clubs and thousands of local clubs will be centered on this program of study, "talk" and real work, with new plans and original ideas to be announced from month to month.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

[NOTE.—The pamphlets containing the outline of the postgraduate study course for county societies for the coming year are ready for distribution. Secretaries of county societies can secure supplies by writing to the Secretary, Council on Health and Public Instruction, American Medical Association, 535 Dearborn Ave., Chicago.]

General Subject for the Month: Rheumatism and Gout

Third Month—First Weekly Meeting

ANATOMY

ARTICULAR STRUCTURES: Articular lamella of bone. Articular cartilages. Interarticular fibro-cartilages. Synovial membrane, structure, attachments, secretion, synovial ligaments.

PERI-ARTICULAR STRUCTURES: Ligaments, structure, attachments. Muscles and tendons, tendon sheaths. Nerves and blood-vessels.

ENDOCARDIUM: Origin, structure, thickness, reduplications, aortic valves, mitral valves.

ETIOLOGY OF ACUTE RHEUMATISM[1]

PREDISPOSING CAUSES: Heredity. Age. Sex. Occupation. Climate, season and locality. Diet. Epidemics. Chronic endocarditis and chorea.

FACTS INDICATING THAT RHEUMATIC FEVER IS AN ACUTE INFECTIOUS DISEASE: Incidence, clinical features, bacteriology. "*Micrococcus rheumaticus*,"[2] staining and cultural characteristics. Other organisms suggested.

OLD THEORIES OF RHEUMATISM: Metabolic (Prout, Latham), and nervous theory (Mitchell).

REFERENCE BOOKS FOR THE THIRD MONTH

The following text-books on practice: Osler, Tyson, Hare, Anders, Edwards, Strümpell. The following on gout: Duckworth, Ewart, Luff.

Osler's Modern Medicine.
Allbutt's System of Medicine.
Symes: Rheumatic Diseases.

Heredity.—"Heredity," says Ribot, "is that biological law by which all beings tend to repeat themselves in their descendants; it is for the species what personal identity is for the individual. By it a groundwork remains unchanged amid incessant variations; by it Nature ever copies and imitates herself."

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1. Cole: New York Med. Jour., 1906, lxxxiii, 334.
2. Lewis and Longcope: Amer. Jour. Med. Sci., 1904, p. 603. Beattie: Brit. Med. Jour., 1905, No. 11, p. 1510. Poynton and Shaw: Trans. Lond. Path. Soc., lv, p. 126. Poynton and Paine: Lancet, Dec. 16, 1905.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 14. Sec., Dr. F. T. Murphy, Brinkley; Homeopathic, Little Rock, November 14. Sec., Dr. P. C. Williams, Texarkana.

CONNECTICUT: Regular, City Hall, New Haven, November 14. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, November 14. Sec., Dr. Edwin C. M. Hall, New Haven; Eclectic, Hotel Garde, New Haven, November 14. Sec., Dr. Thomas S. Hodge, 19 Main Street, Torrington.

FLORIDA: Regular, Jacksonville, November 7-8. Sec., Dr. J. D. Fernandez.

LOUISIANA: Homeopathic, New Orleans, November 13. Sec., Dr. J. T. Crebbin, 1207 Maison Blanche Building.

MAINE: City Council Rooms, Portland, November 14-15. Sec., Dr. F. W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, November 14-16. Sec., Dr. Edwin B. Harvey.

NEVADA: Carson City, November 6. Sec., Dr. S. L. Lee.

TEXAS: Fort Worth, November 14-16 (change of date from previous notification). Sec., Dr. J. D. Mitchell.

WEST VIRGINIA: Hotel Waldo, Clarksburg, November 13-15. Sec., Dr. H. A. Barbee, Point Pleasant.

Massachusetts September Report

Dr. Edwin B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at the State House, Boston, September 12-14, 1911. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 61, of whom 40 passed, including 3 osteopaths, and 21 failed, including 4 osteopaths and 3 non-graduates.

PASSED College	Year Grad.	Per Cent.
Yale University	(1905)	76.2
Kentucky University	(1904)	75
University of Maryland	(1911)	75
Baltimore Medical College	(1910)	75
College of Physicians and Surgeons, Baltimore (1909) 75; (1911) 75, 77.8.		
Tufts College Medical School (1909) 80; (1910) 75; (1911) 75, 75, 75.8, 76.6, 77.9, 83.		
Harvard University Medical School (1909) 81.5; (1911) 75, 82.2, 84.2, 84.5, 87.4.		
Boston University	(1910)	80.5
Dartmouth Medical School	(1910)	75.3
Columbia University, College of Phys. and Surgs.	(1911)	77.9
Cornell University Medical College	(1909)	87.1
University and Bellevue Hospital Medical College	(1911)	79.2
Albany Medical College	(1910)	75
University of Pennsylvania	(1910) 75, 80; (1911)	75.5
Woman's Medical College of Pennsylvania	(1911)	76.7
University of the South	(1908)	75
University of Vermont	(1904) 77; (1910)	81.7
Laval University, Quebec	(1904)	75
University of Rome, Italy	(1893)	75
University of Bonn, Germany	(1898)	87.6

FAILED College		
College of Physicians and Surgeons, Baltimore	(1910)	66.5
Baltimore Medical College	(1905)	63.4
College of Physicians and Surgeons, Boston (1908) 68.5; (1909) 67; (1910) 58; (1911) 68.7, 70.8, 71.7.		
Harvard Medical School	(1911)	71.6
Boston University	(1911)	63.3
Laval University, Quebec	(1911)	65.4, 66.7
University of Vermont	(1892)	61.9
Victoria University, Toronto	(1876)	40.2

Mississippi October Report

Dr. S. H. McLean, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, October 9-10, 1911. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 90, of whom 27 passed, including 12 non-graduates and 1 osteopath, and 63 failed, including 26 non-graduates and 1 osteopath. The following colleges were represented:

PASSED College	Year Grad.	Total No. Examined.
University of Alabama	(1911)	1
Atlanta School of Medicine	(1911)	2
Atlanta College of Physicians and Surgeons	(1906)	1
Chicago Homeopathic Medical College	(1900)	1
University of Louisville	(1911)	3
Vanderbilt University	(1911)	2
Meharry Medical College	(1911)	1
University of Nashville	(1910) (1911)	2
Jefferson Medical College	(1911)	1

FAILED College		
National Medical University, Chicago	(1905)	1
University of Louisville	(1911)	2
Louisville National Medical College	(1910)	1
Tulane University of Louisiana	(1907)	1
Mississippi Medical College (1907) (2, 1908) (1909) (1910) (9, 1911) 14.		
Memphis Hospital Medical College	(1911)	7
University of Nashville	(1906) (1911)	2
University of West Tennessee	(1911)	1
Meharry Med. College (1905) (2, 1907) (1908) (2, 1911)		6
Gate City Medical College	(1906)	1

Book Notices

A TEXT-BOOK OF MEDICINE. By G. Dieulafoy, Professor of Clinical Medicine at the Faculté de médecine de Paris. Authorized English Translation from the Fifteenth Edition of "Manuel de pathologie interne" by W. E. Collins, M.D., M.R.C.S., L.R.C.P., and J. A. Liebmann, Ph.D., M.A., LL.D. In two volumes. Volumes I and II. Cloth. Price, $12. Pp. 2081, with 105 illustrations. New York: D. Appleton & Co., 1911.

The English translation of this popular French treatise will be welcomed by English-speaking physicians. The fact that fifteen editions of the book have appeared in the original language is sufficient evidence that it is fulfilling the purpose of a work on practice by a single author. Dieulafoy has adopted a simple classification of diseases of the different systems and writes from his personal experience rather than in a didactic text-book manner, frequently giving hypothetical or actual cases to illustrate a disease or a method of handling and treatment. This is a satisfactory and comforting method to the physician who turns to a text-book for information on the management of his cases. The author gives no prescriptions but suggests drugs and measures, outlining as far as possible a complete scheme of treatment and management in the various affections. The work has numerous charts, cuts and colored plates illustrating the pathology. The English edition is in two volumes and mechanically is well rendered.

OPHTHALMIC MYOLOGY. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D., Professor of Ophthalmology (Defects of the Eye) in the Medical Department of Vanderbilt University. Second Edition. Price, $4. Pp. 685, with 84 illustrations. G. C. Savage, 137 Eighth Avenue, Nashville, Tenn., 1911.

This well-known work on the extrinsic and intrinsic muscles of the eye having reached a second edition, has been considerably enlarged by the addition of ninety-one pages to the first chapter and the insertion of twenty-three new cuts. Moreover, the practical chapters, 2 and 12, have had such corrections and additions made to them as seemed to be necessary to elucidate the theorems and hypotheses which the author set forth in his first book. These comprise the fundamental principles of ocular rotations and include chapters on orthophoria, heterophoria, esophoria, exophoria and cyclophoria. The attention of the reader is called to the chapters on the paralyses and pareses of the ocular muscles, and to the following chapter which in an original manner discusses the muscles of the iris and of the ciliary body, particularly in their relations to accommodation, convergence and other normal and abnormal movements of one or both eye-balls.

A MEDICAL HISTORY OF THE STATE OF INDIANA. By G. W. H. Kemper, M.D. Cloth. Price, $2.50. Pp. 393, with illustrations. Published by the Author, Muncie, Ind.

This volume contains the articles which the author contributed to the *Journal of the Indiana State Medical Association* during 1909-1911 while he was chairman of the committee on necrology. There is an interesting introduction by Dr. Brayton of Indianapolis. The chapters on the early medical history of Vincennes and Indiana are full of valuable historical material, as are the succeeding chapters dealing with the early history of various localities. There are chapters on the state society, on epidemics and health laws, war history, and an alphabetical list of deceased physicians, together with biographical notices in a number of instances. Pictures of a number of the more prominent physicians are inserted. As a source for reliable historical material, Dr. Kemper's book will acquire an increasing value as years go on. The example he has set for state medical history should be followed in other states.

Medicolegal

Medical Practice Act Not Invalid in Not Providing for Licensing Masseurs—Admissible Evidence of Violation of Law—Who Amenable to Law

(*Germany vs. State* (*Tex.*), *137 S. W. R. 130*)

The Court of Criminal Appeals of Texas again affirms a judgment against a masseur for practicing medicine and treating disease without registering a certificate as required by law. The court says that it was contended that the law regulating the practice of medicine was unconstitutional, and that there was error in a refusal to permit the defendant (Germany) to show that "there was no board of medical examiners nor any authority in the state of Texas to whom he could apply for a license or permit to practice massage treatment, and that, as the law made no provision for the practice of masseur treatment, it was discriminating in its character." But the court knows of no higher duty a government has than to protect the life and health of its citizens and, if experience has shown that no man should be permitted to treat disease who has not a knowledge of the subjects named in the medical practice act, the legislature not only had the power, but it was its duty, to pass a law protecting the citizens of the state.

The law does not attempt to say how any one shall treat disease. This is left to the sound judgment of the practitioner. All it says is that he must have a knowledge of certain given subjects before he shall undertake to practice. If the defendant desires to treat those who are sick, let him demonstrate he has a knowledge of the subjects named in the law, and he can treat disease in the manner that is by him deemed best. Physicians all state that in some character of diseases they use "massage," and that it is beneficial, while in others it is harmful.

The court did not err in not permitting the defendant to prove there was no board where he could obtain license to practice massage. There is a board where he can obtain such a license; but he must show, in order to get that license, that he has a knowledge of the human anatomy, is able to diagnose disease, and has a knowledge of the studies named. This is a wise provision, as this court sees it. In protecting the liberty of the citizen, and in protecting him in his property rights, our laws provide that no man shall practice law, or appear in the courts in behalf of another for a remuneration, unless he has gone before a board and demonstrated he has a knowledge of certain principles underlying the law, naming certain books he must read and master to some extent at least. When we are thus careful in dealing with the liberty and property of our citizens, how much more care should we take when we come to deal with matters relating to his very life and the preservation of his health.

Nor was it error to permit the state to prove that the defendant had treated others than a certain Miss Luther, the offense with which he was charged being that he was offering to treat disease for pay without having registered his certificate. An advertisement issued by him and the fact that he treated others for disease contemporaneously with Miss Luther were all admissible, as was the fact that he told Mr. Luther he could cure his daughter of appendicitis.

It was not a question in the case whether the treatment given by the defendant was harmful or beneficial, and the court did not err in not permitting that issue to get in the case.

It was also immaterial whether Miss Luther had been treated by others before she was treated by the defendant; but the fact that the court permitted her father to state that he had his daughter treated by other physicians before she was treated by the defendant could not be injurious to the defendant.

The fact that the defendant represented to witnesses that he could cure certain diseases, and had cured them, was also admissible. Any statement of a defendant relative to the offense for which he is being tried can be proven if the state desires to elicit it.

As the defendant was claiming that he was exempt under the provisions of the medical practice act, it was proper to admit the testimony of physicians as to being familiar with the sphere of labor of a masseur, such as is exempted under the operation of the medical practice act, and that the sphere is to work under the directions of a physician; that one who is not well up on anatomy, physical diagnosis, etc., is not capable of directing the use of massage.

Under the repeated decisions of this court, one who shall treat or offer to treat mental or physical disease by any system or method, and charge therefor, and who has not obtained authority to do so from the medical board, is amenable to the law.

Evidence of Negligence in Failure to Attend Case as Promised

(*Adams vs. Henry* (*Mich.*), *131 N. W. R. 62*)

The Supreme Court of Michigan reverses a judgment directed for the defendant in this action for malpractice. The plaintiff claimed that premature labor had been brought on by a jar while alighting from a street car, and that the defendant, who had called on her several times in the afternoon promised to return promptly at 11 o'clock, maybe a little earlier, but did not return until 2 o'clock a. m., while the child was born at five minutes after 12 a. m. The plaintiff also offered to prove that her husband had shortly after 11 o'clock called the defendant by telephone, also a little later, and again after the child was born, and that the defendant had each time promised to attend at once, but did not until the time stated. The court holds that if the plaintiff had been permitted to produce, and had been able to produce, testimony tending to establish the statements contained in the offer of proof, it could not be said as a matter of law that the defendant was not negligent. If the defendant was present and responded personally to each call that was said to have been made on him between 11 and 12:30 o'clock, and on each occasion agreed to at once attend the plaintiff and failed to keep his promise, the court thinks he should be held liable, if his failure to attend resulted in injury to the plaintiff. The plaintiff's declaration contained the averment that a laceration of the cervix and rupture of the perineum resulted from the defendant's failure to attend as it was alleged that he had agreed to do, and the court is disposed to the view that the plaintiff should have been permitted to offer such testimony as she possessed pertinent to the issue.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Philadelphia

August, IX, No. 1, pp. 1-152

1 *Standardization in Orthopedic Instruction and Practice. A. H. Freiberg, Cincinnati.
2 *Currents and Countercurrents in Surgery. E. H. Bradford, Boston.
3 *Results from Use of Tuberculin in Joint Tuberculosis. G. B. Packard, Denver.
4 *Tuberculin in Orthopedic Diagnosis. W. G. Stern, Cleveland.
5 *Joint Tuberculosis in Children. L. W. Ely, Denver.
6 *The Anterior Heel. A. G. Cook, Hartford, Conn.
7 *Tendon Transplantation and Silk Ligaments: A Few Practical Points in Technic. E. W. Ryerson, Chicago.
8 *Use of Intra-Articular Silk Ligaments for Fixation of Loose Joints in Residual Paralysis of Anterior Poliomyelitis. B. Bartow and W. W. Plummer, Buffalo.
9 *Treatment of Paralytic Outward Rotation of Foot. G. G. Davis, Philadelphia.
10 Congenital Elevation of Scapula. H. W. Kennard, Baltimore.
11 *Physiologic Conception of Arthritis and Some of Its Practical Uses. H. W. Marshall, Boston.

1, 2, 3, 5, 7, 8 and 9. Abstracted in THE JOURNAL, June 17, 1911, pp. 1845 and 1846.

4. **Tuberculin in Orthopedic Diagnosis.**—In 471 cases Stern has used the following "combined" test: When a case presents clinical signs pointing to the possibility of a tuberculous infection, a v. Pirquet and a Calmette test are made at the same sitting. The patient is seen at the end of twenty-

four and again after forty-eight hours. If both tests are positive the case is held to be one having an active tuberculosis; if both tests are negative the case is declared free from tuberculosis. Where one test is positive, and the other negative (it usually falls out v. Pirquet positive, Calmette negative), the subcutaneous or intracutaneous prick reaction is resorted to. The smallest possible doses are given subcutaneously, since there is already one negative test and it is desired only to bring out evidences of active tuberculosis. If the third test proves positive, active tuberculosis is diagnosed, and vice versa. Wherever possible the findings have been checked up by laboratory examinations of scrapings, pus, cerebrospinal fluid, etc., Roentgen-ray examinations, autopsy (one case), the clinical course of the disease, and by the variation of the opsonic index after massage and passive motion. In all, Stern knows of but six cases out of the 471 tested in which a mistaken diagnosis was made and in all of these the error was a positive one, i. e., tuberculosis was indicated where it did not exist; but in no case was a tuberculous infection overlooked. In two out of the six a Wassermann reaction done at other hands proved positive and the patients improved under antisyphilitic treatment. The other four cases were all mild cases of arthritis, clinically suspicious, in whom the Roentgen ray gave the clew to the proper diagnosis; none ran the course of a tuberculosis. None of the cases so severe as to give a chance for laboratory investigation was mistaken. Two patients who died from tuberculous meningitis within fourteen days after Stern first saw them, one a tuberculous coxitis, the other a tuberculous shoulder and hip case, gave positive reactions.

6. **Anterior Heel.**—The anterior heel advocated by Cook is an inverted isosceles triangle prism of leather, the base being about 2 inches and the altitude varying from 2/16 to 5/16 of an inch. This prism is placed obliquely across the bottom of the shoe, the vertex of the triangle being just behind the anterior arch or ridge formed by the heads of the metatarsal bones. The base of the triangle is applied to the inner sole, the outer sole following the contour of the two equal sides. The shoe is provided with a heavy steel shank which is supported behind by a low, broad heel, and in front by the anterior heel. The anterior heel, when studied in connection with the steel shank and the posterior heel, is an important element in the balance of the shoe, and by the use of the anterior heel, the following facts are demonstrated: (1) The center of gravity of the body is moved backward and the pressure thus removed from the heads of the metatarsal bones. (2) By supporting the steel shank with the anterior heel, the posterior arch of the foot is supported, and the pressure distributed by increasing the bearing surface. (3) In the act of walking, when the weight passes from the heel and instep to the ball of the foot, the anterior heel acts as a fulcrum and thus relieves pressure on the heads of the metatarsal bones. (4) While standing on the balls of the feet, the anterior heel supports the heads of the metatarsal bones, equalizes pressure, and prevents the falling of the anterior arch. The anterior heel affords instantaneous and efficient relief from all troubles of the anterior part of the foot, whether considered singly or collectively, such as depression of the anterior arch, callosities, corns, bunions, twisted or distorted toes, Morton's toe, anterior metatarsalgia, etc., etc. The common cause of all these troubles is undue pressure, and the anterior heel, by removing this pressure, removes the cause, and places the injured parts in a position in which recovery is possible. A shoe balanced in this manner forms a reliable base for a simple "orange-peel" instep support. The shoe and instep support prevent no normal motion of the foot and impede no normal action of the muscles; a weak foot is not bound down and splinted, but is carefully balanced and supported and kept in a normal position. Walking is easy and natural, and when the weakened muscles have regained their power and the overstretched ligaments have contracted to their proper length, the arch of the foot rises above its support and the support becomes superfluous. Cook claims that shoes and instep supports made in this manner and worn indefinitely will in no way injure normal feet.

11. **Physiologic Conception of Arthritis.**—Marshall calls attention to the fact that knowledge of physiologic conditions which control the health of joints offers a rational means of simplifying and harmonizing the legion of confusing observations and theories. Nervous, infectious, metabolic, mechanical and anatomic theories all may be included in a physiologic conception which recognizes the possibility of influencing joints through their blood and nerve-supply, and by mechanical motions, and other physical agencies. Physiologic conceptions of joint disease include bacterial theories of arthritis, metabolic theories, also the action of drugs and food products in the single group of blood irritants. Excessive mechanical irritations, deformities resulting from continued mechanical strains, contractions and postures acquired during acute stages of arthritic diseases due to faulty attitudes while in bed, may be harmonized on a physiologic basis and interpreted as departures from normal physiologic functions through faulty mechanical and anatomic conditions. Nervous theories also are not overlooked, and the importance of nervous control of joints is emphasized. By supplementing this knowledge of physiologic conditions which control the health of joints with the physiologic conceptions of interactions between organs, and the variable resistances of tissues, an adequate hypothesis may be formulated which is simple enough to be remembered, and which satisfactorily explains all confusing observations and ideas that now exist.

If there have been recurring attacks of joint symptoms in a person who has always been in delicate health it is unreasonable to believe that arthritis will cease abruptly and permanently, and treatment in such cases first of all must be directed toward building up very slowly the general vigor and resistance. Cases with abrupt onset of arthritis in full health, with joint symptoms occurring for the first time, have different prognosis and treatment; and while it is impossible to predict the length and severity of symptoms in such instances, obviously remedial measures should not be prescribed, although they often are, with the same frequency and degree of vigor as used with delicate persons. When a period of failing health has preceded the onset of arthritic disease, as very frequently happens, personal habits and modes of living should receive particular attention; and generally the causes may be discovered in common, uninteresting defects in personal hygiene which, when corrected, are followed by subsidence of joint pains and stiffness and by return to usual health. It is Marshall's custom to inquire closely into the patient's daily routine, the time of arising, kind of breakfast eaten, the nature of the occupation, hours of work, and whether there is an excessive amount done; the midday meal and regularity in taking it; also the nature of the evening meal, and how evenings are generally spent; what the usual hours for sleep are, and whether it is restful or disturbed; the individual's usual recreations; the amount of out-door exercise; the appetite, peculiarities in diet, and regularity of intestinal functions; the existence of mental worries and habits of taking stimulants. The patients' opinions of their own condition and what caused the failing health are asked; and from these simple questions it is possible to gain very accurate ideas of the daily life and often to discover remediable defects which alone are responsible for poor health and arthritis. Cases of intractable arthritis must have their beginnings in these same simple, commonplace defects of personal habits that escape recognition owing to their simplicity and ordinary character; and if this is true it indicates that early treatment and prevention of joint disease is the most important and rational course to advocate.

Northwest Medicine, Seattle, Wash.

October, III, No. 10, pp. 271-302

12 Some Problems for Washington Profession. W. Johnston, Spokane, Wash.
13 Future Hygiene. J. N. Hurty, Indianapolis, Ind.
14 Baldness, Its Cure and Cause. F. S. Palmer, Seattle, Wash.
15 Antityphoid Inoculation. J. E. Lane, North Yakima, Wash.
16 Fallacies of Climate in Treatment of Tuberculosis. R. W. Matson, Portland, Ore.

Colorado Medicine, Denver

October, VIII, No. 11, pp. 337-367

17 Conservation of Human Energy. J. E. Goldthwait, Boston.
18 Influence of Mental Attitude of Patient in Surgical Operations. E. J. A. Rogers, Denver.

Texas State Journal of Medicine, Fort Worth

October, VIII, No. 6, pp. 157-182

19 *Twenty-Seven Cases of Latero-Lateral Anastomosis of Ileum and Sigmoid Flexure for Chronic Mucous Colitis. G. H. Noble, Atlanta, Ga.
20 Salvarsan in Mental and Nervous Diseases. W. L. Allison, Fort Worth.
21 *Experience with Noguchi Modification of Wassermann Reaction. J. H. Black, Dallas, Texas.
22 *Pellagra, with Its Peculiarities on the Plains. E. H. Inmon, Takoka, Texas.

19. **Latero-Lateral Anastomosis of Ileum and Sigmoid Flexure.**—It is claimed by Noble that this operation will cure mucous colitis in properly selected cases. Patients with atonic dilatation of stomach and absence of free hydrochloric acid are not good subjects for it and if it be done in this class of patients, persistent treatment subsequently for diseases of the stomach should be enforced. All contributing causes to constipation that can be relieved by surgical measure, should have attention at the time the anastomosis is made. A large percentage (75 per cent.) of Noble's twenty-seven patients received prompt relief from the operation, others required from one to two years to effect a cure, while a small per cent. are but little improved. He cautions that it is not to be depended on as a cure to the exclusion of diet, exercise, and in some instances, laxatives. Partial diversion of the intestinal current into the rectum does not cause diarrhea but on the other hand absorption of fluids by the rectum causes "drying out" of feces, and more or less constipation in about 25 per cent. The patients are cured of mucous colitis though not entirely relieved of constipation. It does not interfere with nutrition. The absorption of toxins is diminished, but absorption of water is ample. The operation is based on the principle that mucous colitis is largely caused by constipation and putrefactive decomposition. From this point of view, the direct object of the anastomosis is to partially drain the most intensely affected section of the ileum, preventing its full discharge into the cecum; for the amount of decomposition, irritation and absorption of toxins is more or less in proportion to the quantity of proteins and degree of stasis in the colon. In the technic of the operation, the suture method is preferred and the anastomosis made as low down on the ileum and sigmoid as the two portions of the intestinal canal can be approximated without tension. Loops are drawn out of the abdomen far enough to make the work easy and to avoid angling of the bowel. The danger of infection is minimized by the use of the rubber dam. This is a piece of rubber sheeting about 14 inches square, in which two slits are cut about 1½ inches long and 6 inches apart, through which the knuckles of the intestines are drawn. The rubber is grasped between the thumbs and fingers of both hands and slightly stretched as each loop of intestine is placed in the clamp. None of the intestine except the immediate portion involved in suturing is exposed to infection from opening the lumen of the canal. After the raw edges are sutured, the exposed parts are thoroughly cleansed and clamps and rubber dam removed. The operation is completed aseptically.

21. **Noguchi Modification of Wassermann Reaction.**—A typical lesion in which spirochetes had previously been found, gave Black a positive reaction after seven weeks. The eruption soon followed. Four weeks after the appearance of a chancre on the lip, a positive reaction was found. These are the earliest positive reactions he has obtained. Two suspicious lesions, each of six weeks' duration, gave negative reactions and later healed without treatment and no secondaries occurred. A suspicious ulcer of the tonsil gave a negative reaction and healed promptly under local treatment. Of seven patients showing typical syphilitic eruptions, all were positive. Eleven cases in the tertiary stage, showing active symptoms, all gave positive reactions. Of nine patients who gave positive histories, but who have had no symptoms for periods varying from a few months to several years, seven gave negative reactions. Three cases with suspicious but not positive histories and showing no definite symptoms, gave negative reactions. Of sixteen cases giving a negative history and yet showing suspicious lesions, fifteen were negative and one positive. This positive case later responded to salvarsan. One of the cases giving a negative reaction is seen now to be clinically syphilis and is responding to the exhibition of mercury. This is the only failure of the reaction in this series. Black has made only six examinations of patients who had previously given positive reactions and had been given an intramuscular injection of salvarsan. These second examinations were made from six to eight weeks after the injection and were all negative. One of these cases after salvarsan, two months after his previous reaction, remains negative. One case of congenital syphilis was positive and one patient showing some obscure mental disturbance also responded. The latter gave a history of fifteen years' standing.

22. **Pellagra.**—The peculiarities of this disease on the plains seems to be that the disease is much more severe than in the lower altitudes of Texas. The cases which have been observed by Inmon presented all the usual symptoms, except one case, in which the patient's mind was not affected to within ten hours of death. As a rule, pellagra on the plains runs a short course and very promptly terminates in death.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXII, No. 248, pp. 351-382

23 Problem of Typhoid in Baltimore. W. W. Ford and E. M. Watson, Baltimore.
24 Recent Epidemic of Diphtheria in Johns Hopkins Hospital and Medical School: General Procedures Adopted. W. W. Ford, Baltimore.
25 *Infection of Urinary Tract by Bacillus Lactis Aerogenes, with Consideration of the Mode of Entrance of Bacteria into Bladder. J. A. Luetscher, Baltimore.
26 Combined Adenocarcinoma and Mixed-Cell Sarcoma of Ovary. E. K. Cullen, Baltimore.
27 *Blood-Picture in Hodgkin's Disease. C. H. Bunting, Madison, Wis.
28 *Transplantation of Free Flaps of Fascia. J. S. Davis, Baltimore.

25. **Infection of Urinary Tract by Bacillus Lactis Aerogenes.**—Luetscher summarizes his conclusions as follows: The *B. lactis ærogenes* is a rare cause of cystitis. The great majority of infections are due indirectly to the introduction of instruments. Infections of the bladder, in cases in which no instruments have been introduced, are very frequent in women and rare in men. In infections of the bladder in women, without a history of the introduction of instruments, the route of infection is usually an ascending one and due to the direct invasion of the bacteria from the urethra. Such direct invasion of the bladder also occurs in the male and probably much more frequently than is usually supposed. The introduction of a catheter or instruments into the bladder is a very serious procedure, since it may produce a pyuria if the local conditions are favorable, or a bacteriuria which later may be converted into a pyuria when the local conditions become favorable.

27. **Blood-Picture in Hodgkin's Disease.**—One of the most marked characteristics of the blood-smears of Hodgkin's disease, according to Bunting, is the presence of a large number of blood-platelets, inclusive of unusually large platelet forms, practically megalokaryocyte pseudopodia. This was observed in all the eleven cases forming the basis of this report, both in early and in late cases, and over considerable periods of time in cases in which blood-counts have been made at intervals. From this constant finding and from pathologic findings in autopsy material from cases of Hodgkin's disease, it was suggested in a previous report that the toxin of the disease acted as strongly on the platelet-forming elements as on the lymphocytes. An eventual necrosis of megalokaryocytes in the bone-marrow was found. One case of the present series, showed a low platelet-count in the circulation. After having shown a high platelet content of his blood in counts at intervals from Nov. 9, 1909, to September, 1910, the boy returned to the hospital in April, 1911, with serious hemorrhages from the mucous membranes, with a secondary anemia, a leukopenia, 3,500 to 4,000, and fewer platelets than leukocytes, as shown by repeated examinations made during April and May. However, while exceptional or terminal cases may show this platelet exhaustion, the excessive number would appear to be constant in the course of the disease. Coincident with this platelet study, careful study of the leukocyte picture in the disease has been made and has led to the conclusion that in the combined platelet and leukocyte picture one has features that are very characteristic and, in fact, almost pathognomonic of Hodgkin's disease.

While from his experience Bunting believes that the diagnosis may be made from examination of the blood-smear, he would not recommend the method to the exclusion of the histologic examination of an excised gland. The blood-smears have been stained with Wright's stain for the purposes of the counts, although Ehrlich's triple stain has been used for the determination of certain features. Five hundred cells have been the routine and the smallest number counted, but in some cases this has been exceeded. The leukocytes have been grouped into seven classes, except in a few of the early counts wherein but six were made. These groups are: (1) Polymorphonuclear neutrophil (N.); (2) eosinophil (E.); (3) basophil (mastzell) (B.); (4) small lymphocyte (S. L.); (5) large lymphocyte (L. L.); (6) large mononuclear (L. M.); (7) transitional (Tr.). The most striking feature in the counts, perhaps, is the constant high percentage of the so-called transitional cells. This high percentage occurs not only when the total leukocyte count is approximately normal, but also is maintained even when there is a sharp leukocytosis. With a normal total count of leukocytes the percentage of transitionals approximates 10; with a very marked leukocytosis one may have a reduction (6.4 per cent.); while in a leukopenia the percentage rises to 17.8 in a total of 4,800. The series indicates, then, that throughout the disease there is a relatively large number of these cells in the circulation. When one recalls that similar cells are found in smears from normal lymph-glands and also that in Hodgkin's disease there is a marked proliferation of the endothelial elements of the glands, it is difficult not to draw the conclusion that such a proliferation results in this excessive transitional content of the blood. The lymphocyte-count has varied much in these cases, but there is a definite tendency for a percentage decrease from a normal or slightly increased count in early and active stages to a very low count in later stages. With this decrease in lymphocyte percentage, there occurs a corresponding increase in the polymorphonuclear count, from a relatively normal count during the course of the disease, to a relatively high count (76.2, 79.4, 81.8, 84 per cent.) in the terminal stages or when the periglandular infiltration and induration are marked. Eosinophils are found in the glands in large numbers. The highest count found was 8.6 per cent. There is no striking change in the basophil-count, or in that of the large mononuclears.

28. **Transplantation of Free Flaps of Fascia.**—In one group of experiments made by Davis, free fascia flaps were successfully transplanted into the subcutaneous tissue, into fat, on muscle, periosteum, bone, cartilage, tendons and ligaments. Microscopic examination of the specimens showed that the fascia retained its own structure after transplantation and was apparently healthy and well nourished. This was true even after the fascia had been kept in cold storage for thirty-five days and then transplanted into another animal. A second group shows that muscle and tendon defects may be bridged by three flaps of fascia. Muscle defects may be bridged by means of fascia flaps and thus a certain amount of the muscle function saved. The fascia united firmly with the muscle ends and formed a strong symmetrical band between them. A third group shows that free flaps of fascia may be transplanted successfully around arteries, veins and nerves, without in any way interfering with the lumen of the vessels, or compressing the nerves. In a fourth group free flaps of fascia were successfully transplanted into joints and also to take the place of patellæ which had been removed. A fifth group shows that flaps of fascia inserted in skull defects between the dura and bone edges will heal and give a strong membrane which will resist considerable pressure from within and without. When the dura is removed in addition to the bone the fascia flap tucked under the bone edges will unite with the dura and also become tightly adherent to the bone edges. There was in each instance a single fine adhesion of the cortex to the center of the fascia flap. This group also shows that free flaps of fascia may be successfully used to cover prepared defects in the trachea, without subsequent infection and that the mucous membrane grows across the fascia covering the defect. A sixth group shows that free flaps of fascia may be sutured into peritoneal and muscle fascia defects in the abdominal wall and that it will incorporate itself with the surrounding peritoneum and muscle edges. A small omental adhesion was present on examination of the specimen in each instance, but in no case was there adhesion of the gut or any other abdominal organ to the fascia. When a hernia was produced by the removal of a portion of the abdominal wall, except the skin, it was readily cured several weeks later by the transplantation of fascia flaps. In group six, free fascia flaps were successfully transplanted onto the stomach, the intestine and the bladder. The fascia seemed to incorporate itself with the peritoneum. In group seven free flaps of fascia were successfully transplanted on the liver, kidney and spleen.

In several experiments fascia was drawn taut and sutured around firm rubber tubes 0.8 to 1 cm. in diameter and then inserted in the subcutaneous tissue. These specimens were removed after forty-nine and fifty-four days. The structure of the fascia could easly be seen. Microscopic examination showed normal staining fascia with no signs of degeneration. This is interesting as it shows that fascia will receive sufficient nourishment if only one surface is exposed to living tissue. Once or twice the fascia flap was accidentally allowed to partially dry out before it was transplanted, but, in spite of this, it was moistened with salt solution and transplanted. The results were excellent and the fascia was nourished and grew in its new position.

Lancet-Clinic, Cincinnati

October 14, CVI, No. 16, pp. 481-506

29 Radio-Activity of Mineral Waters from Mt. Clemens and Vicinity. G. A. Persson, Mt. Clemens, Mich.
30 Surgery of Lungs. B. M. Ricketts, Cincinnati.
31 External Malleolar Reflex; Chaddock's Sign. R. Ingram, Cincinnati.

New York Medical Journal

October 14, XCIV, No. 16, pp. 765-812

32 Treatment of Portal of Entry of Systemic Diseases. G. Wilson, Baltimore.
33 Newer Teaching of Gastro-Intestinal Diseases. M. I. Knapp, New York.
34 Recurrence of Scarlet Fever. J. P. C. Griffith, Philadelphia.
35 Some More Important Legal Aspects of Practice of Medicine. H. M. Friedman, New York.
36 Use of Nuclein Solution in Surgery. H. J. Achard and H. H. Redfield, Chicago.
37 Complications Following Submucous Operation on Nasal Septum. I. H. Alexander, New York.
38 Few Suggestive Experiments for Cutaneous Reaction for Diagnosis of Syphilis. M. J. Schoenberg and E. Burchill, New York.
39 *Rôle of Extensor Toe Reflexes in Neurologic Diagnosis. T. B. Throckmorton, Cherokee, Iowa.

39. See THE JOURNAL, May 6, 1911, p. 1311.

Journal of Missouri State Medical Association, St. Louis

October, VIII, No. 4, pp. 135-180

40 Our Rural Schools. E. H. Miller, Liberty, Mo.
41 Explanation of External Malleolar Sign Made with View to Incite Study to Determine Its Place in Semeiology. C. G. Chaddock, St. Louis.
42 Blindness Following Administration of Organic Arsenic. A. W. McAlester, Kansas City, Mo.
43 Cardiospasm with Succuiation of Esophagus: Its Diagnosis and Treatment. J. S. Myer, St. Louis, Mo.
44 Some Examples of Extragenital Syphilis. J. W. Marchildon, St. Louis.
45 Roentgenotherapy of Goiter. J. N. Scott, Kansas City, Mo.
46 Rebreathing in Ether Administration with Special Reference to Carbon Dioxid Content. W. E. Leighton, St. Louis.
47 Venous Anesthesia. G. A. Lau, St. Joseph, Mo.
48 Menace to Eyesight from Trachoma. J. Green, St. Louis.
49 *Buttermilk as Infant Food. F. C. Neff, Kansas City, Mo.
50 Dietetics of Infancy. J. M. Brady, St. Louis.
51 *Treatment of Pneumonia in Adults. H. A. Killian, Portageville, Mo.

49. **Buttermilk as Infant Food.**—Neff does not believe that buttermilk should be considered as a substitute for sweet milk in the feeding of healthy infants. His experiences prove that the cases for the feeding of buttermilk as for any other form of milk should be selected, and that the daily weight and other evidences of gaining should be closely watched. Buttermilk is more especially suited to sick infants, those with marasmus, chronic enterocolitis, exudative diathesis and those that are commonly termed difficult feeding cases. It may be given for a period of several months without causing unfavorable symptoms and top milk may be gradually added if desired. It is especially of value in the summer months, at which season it will be better tolerated and will produce

better stools than the same case would have done on a sweet milk mixture. Chilling and proper handling of a clean fresh milk is essential to the successful administration and good results in buttermilk feeding.

51. **Treatment of Pneumonia.**—Killian's treatment is entirely symptomatic. He says that to maintain life the careful management of the stomach by suitable diet to prevent distention and the consequent cardiac embarrassment is of the highest importance. To support the heart; the best drugs for this purpose are strychnin, caffein, alcohol, digitalis, camphor and adrenalin. Treat the symptoms as they arise; not the pneumonia, but the patient with pneumonia.

St. Paul Medical Journal

October, XIII, No. 10, pp. 421-482

52 Laboratory Methods in Diagnosis of Syphilis. H. L. Ulrich, Minneapolis.
53 Rambles Through Hospitals Abroad. F. Leavitt, St. Paul.
54 Diseases of Gall-Bladder. R. C. Dugan, Eyota, Minn.

Western Medical Review, Omaha

October, XVI, No. 10, pp. 495-546

55 Preventive Medicine. W. H. Wilson, Lincoln, Neb.
56 Therapeutic Points in Reference to Neuroses. G. A. Young, Omaha, Neb.
57 Vacuum Treatment of Ear, Nose and Tonsils. H. B. Lemere, Omaha, Neb.
58 Venereal Diseases, Their Causes, Prevention and Cure. W. O. Henry, Omaha, Neb.
59 Scientific Problems of Nature's Secrets. P. E. Koerber, Yutan, Neb.

Journal of Biological Chemistry, Baltimore

October, X, No. 3, pp. 168-294

60 Nitrogen Fixation by Yeasts and Other Fungi. C. B. Lipman, San Francisco.
61 Phytase in Lower Fungi. A. W. Dox and R. Golden.
62 Determination of Calcium in Presence of Magnesium and Phosphates; Determination of Calcium in Urine. F. H. McCrudden.
63 Study of Optical Forms of Lactic Acid Produced by Pure Cultures of Bacillus Bulgaricus. J. N. Currie, Madison, Wis.
64 *Rôle of Carbohydrates in Creatin-Creatinin Metabolism. L. B. Mendel and W. C. Rose, New Haven, Conn.
65 *Inanition and Creatin Content of Muscle. L. B. Mendel and W. C. Rose.
66 *Excretion of Creatin in Infancy and Childhood. W. C. Rose, New Haven.
67 *Prevention and Inhibition of Pancreatic Diabetes. F. P. Underhill and M. S. Fine, New Haven, Conn.
68 An Improved Apparatus for Determination of Amino Groups. D. Klein, Madison, Wis.
69 Shaffer's Method for Determination of β-Oxybutyric Acid. R. A. Cooke and E. E. Gorslin, New York.

64. **Creatin and Creatinin Metabolism.**—Two fundamental facts are emphasized by the experiments of Mendel and Rose: (1) An increase in the elimination of total creatinin (i. e., creatin plus creatinin) is always accompanied by an increase in the output of total nitrogen; and (2) carbohydrates, in contrast to the other foodstuffs, are capable of preventing the excretion of creatin and are therefore indispensable for normal creatin-creatinin metabolism. They found that the excretion of creatin induced by starvation, is inhibited in rabbits by feeding a diet of carbohydrates absolutely free from proteins and fats. When the carbohydrates are given in liberal amounts, creatin entirely disappears from the urine. The creatin elimination is not reduced by feeding a diet of fat alone, or by a diet of fat and protein. Experimental interference with carbohydrate metabolism leads to the elimination of creatin. After phlorhizin diabetes which depletes the store of carbohydrates and during phosphorus poisoning, which disturbs the glycogenic functions, the output of creatin in dogs is decidedly increased. An increase in the output of creatin plus creatinin (total creatinin), is always accompanied by an increase in total nitrogen elimination. This parallelism of total creatinin and total nitrogen outputs in inanition and with nitrogen-free diets is ascribed to a common source, namely, true tissue or endogenous metabolism. The metabolism of exogenous or reserve proteins is not accompanied by the production of creatin or creatinin. The intimate relation of creatin excretion (or the failure of conversion into creatinin) to carbohydrate metabolism, is discussed in detail.

65. **Inanition and Creatin Content of Muscle.**—The authors are convinced that there occurs an increase in the percentage of creatin in the muscles of rabbits and fowl during inanition. Two possible explanations for the larger amount of creatin suggest themselves. The increase may be due (1) to a removal of the non-creatin portion of the muscle, leaving the creatin intact; or (2) to an increased formation of creatin. The first explanation seems improbable, for if the creatin is loosely combined with muscle as Uraño ('07) believes, there is no reason for assuming that the non-creatin material could be withdrawn and leave the creatin intact, any more than for assuming that the reverse could occur. An increased formation seems to be the most plausible explanation.

66. **Excretion of Creatin in Infancy and Childhood.**—In view of the observations that creatin is a normal constituent of the urine of sucklings Rose attempted to determine the age at which this product disappeared. Thirty-nine specimens of urine from children of different ages were analyzed. With the exception of two cases, creatin was present in all specimens from children under 15 years of age. A boy of 10 and a girl of 13 failed to have creatin in their urines. No progressive decrease in the percentage of the total creatinin in the form of creatin coincident with increase in age is apparent; neither is the percentage of creatin constant for the same individual. For instance, one specimen obtained from a child of 5 years contained 24.2 per cent. of the total creatinin in the form of creatin, while a second sample from the same child a few days later, contained 79.2 per cent. of the total creatinin as creatin. It was impossible to obtain information as to the amount and kind of food eaten by the children. Most of the specimens were obtained from the city orphans home or from private families, and the subjects of the experiments were probably ingesting more or less meat. It is possible, therefore, that the oxidation or conversion of creatin into creatinin may be difficult for young individuals to accomplish and in this case the creatin of the urine may in part, represent ingested creatin; or the glycogenic functions may be imperfectly developed and the store of carbohydrates be insufficient to exert its regulatory influence over metabolism during childhood.

67. **Hydrazin and Pancreatic Diabetes.**—The authors found that removal of the pancreas from normal dogs may be followed by the appearance of sugar in the urine within a period of two hours. Glycosuria fails to manifest itself after pancreas extirpation in dogs that have received previous injections of hydrazin. In general this effect is produced by a single subcutaneous injection of 50 mg. per kilo hydrazin sulphate. The influence of the hydrazin administration lasts between two and four days. A single injection of 25 mg. per kilo hydrazin sulphate does not prevent sugar elimination in the urine, under the experimental conditions, after pancreas removal. The blood-sugar content of animals treated with hydrazin and then depancreatized remains below the normal, or at least hyperglycemia is not in evidence. Hydrazin introduced into dogs during pancreatic diabetes is capable of completely inhibiting the excretion of sugar by the kidney. After hydrazin administration the presence of adrenalin in the adrenals may still be demonstrated. In this respect hydrazin differs from phosphorus. The authors assume that there is an interrelation between the pancreas, the adrenals and the liver by the equilibrium of which the sugar content of the blood is kept practically constant. To accomplish this the pancreas is assumed to pour an internal secretion into the blood which tends to increase carbohydrate catabolism, hence to diminish the blood-sugar. This influence they have called the pancreas secretion factor. On the other hand, the adrenal is assumed to give an internal secretion to the blood which has the opposite effect, namely, it has a tendency to check carbohydrate catabolism; hence leads to an accumulation of sugar in the blood. This action they have designated the adrenal secretion factor. According to this idea of what occurs to keep blood-sugar content normal, the quantity of glycogen which will be taken from the liver's store to accomplish this purpose is entirely dependent on which of the two factors is predominant at any given moment. Applying these ideas to pancreas extirpation or adrenal removal, the effects which should theoretically follow according to their scheme agree perfectly with recorded observations which for the most part have universal acceptance.

Laryngoscope, St. Louis

September, XXI, No. 9, pp. 891-970

70 History of Bronchoscopy and Esophagoscopy. G. Killian, Berlin.
71 Bronchoscopy and Esophagoscopy: Their Indications and Contra-Indications. D. O. Kahler, Vienna.
72 Esophagoscopy and Gastroscopy. C. Jackson, Pittsburgh.
73 Consideration of Mechanism of Pressure in Production of Vertigo. C. J. Blake, Boston.
74 Rachiocentesis in Treatment of Aural Vertigo. J. J. Putnam, Boston.
75 Method of Obliterating Naso-Frontal Duct and Catheterizing Frontal Sinus. H. P. Mosher, Boston.
76 Modern Operative Procedures in Ear Affections. H. B. Graham, San Francisco.
77 Relation of Internal Carotids and Optic Commissure to Hypophysis. O. H. Maclay, Chicago.
78 Remarkable Case of Intranasal Destruction from Disease Without Any Deformity. O. J. Stern, Chicago.

American Journal of Surgery, New York

October, XXV, No. 10, pp. 309-340

79 Advantages of Nitrous Oxid-Oxygen Narcosis. R. C. Coburn, New York.
80 Surgical Formulary, Equipment, Method of Preparation and Sterilization Employed at Mount Sinai Hospital, New York. A. V. Moschcowitz, New York.
81 Surgical Essentials. F. E. Neef, New York.
82 Treatment of Impaired Function After Fractures About Ankle. S. Epstein, New York.
83 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
84 Useful Method of Continuous Stomach Drainage for Cases of Postoperative Dilatation, Intestinal Obstruction and Peritonitis. A. Bassler, New York.

Southern Medical Journal, Nashville

October, IV, No. 9, pp. 637-724

85 Surgical Treatment of Dyspepsia. S. McGuire, Richmond, Va.
86 Home Treatment of Tuberculosis, with Comments on Use of Tuberculin. C. M. Nice, Birmingham, Ala.
87 Rudolf Virchow. W. A. Bryan, Nashville, Tenn.
88 Improved Diagnostic Methods in Kidney Surgery. J. M. Mason, Birmingham, Ala.
89 Some of the Unfamiliar, Atypical Forms and Controverted Phases of Tuberculosis. R. Matas, New Orleans, La.
90 Practical Value of Ross "Thick Film" Method in Diagnosis of Malaria. W. M. James, Canal Zone.
91 Treatment of Pulmonary Tuberculosis. F. S. Meara, New York.
92 Dysmenorrhea. J. R. B. Branch, Macon, Ga.

Boston Medical and Surgical Journal

October 19, CLXV, No. 16, pp. 587-628

93 Some Considerations of Ether Anesthesia. D. F. Mahoney, Boston.
94 Local, Spinal and General Anesthesia. F. Allen, Boston.
95 Intratracheal Insufflation as Anesthetic Method. W. C. Quinby, Boston.
96 Apparatus for Administration of Ether by Intrathoracic Insufflation. A. Ehrenfried, Boston.
97 Hints on General Anesthesia. R. W. Hornabrook, Melbourne, Australia.
98 Anesthesia. W. M. Boothby, Boston.
99 Management of Spinal Curves. E. H. Bradford, Boston.
100 Coexistent Epidemic Cerebrospinal Meningitis and Malaria. W. B. Collins, Northampton, Mass.
101 Nitrous Oxid and Oxygen Anesthesia. A. H. Mandell, New Bedford, Mass.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

October 7, No. 2649, pp. 781-868

1 *Transplantation of a Segment of Small Intestine to Repair Resected Sigmoid Flexure. W. S. Fenwick.
2 Dermatitis Produced by East Indian Satinwood (Chloroxylon Swietenia). J. T. Cash.
3 Cystic Ovary in Pelvis. E. L. Gowland.
4 Varieties and Treatment of Asthma. G. A. Gibson.
5 Diagnosis of Fever Without Physical Signs. W. H. White.
6 *Lung Syphilis. J. D. Stanley.
7 Simple Method for Therapeutic Inhalation of Carbonic Acid Gas. W. Ewart.
8 Colon Dyspepsia. T. S. Wilson.
9 *Recent Advances in Cardiac Therapeutics. F. W. Price.
10 Treatment of Drug Addiction and Prophylaxis of Relapse. W. O. Jennings.
11 Clinical Determination of Blood-Pressure by Means of Pachon's Sphygmo-Oscillometer. J. F. Daly.
12 *Mania Following Pneumonia. W. J. H. Tyson.
13 Acute Subcutaneous Emphysema. J. S. Goodall and W. N. Kingsbury.
14 Vascular Diseases of Skin and Their Relation to Other Morbid States. T. C. Fox.
15 *Unusual Case of Skin Pigmentation. G. H. Lancashire.
16 Treatment of Eczema. G. G. S. Stopford-Taylor.
17 Certain Affections of Skin Resulting from Degeneration of Blood-Vessels. J. Galloway.
18 Case of Pruritus Vulvæ. J. G. Tomkinson.

1. Transplantation of Segment of Small Intestine.—In the case cited, Fenwick did a colotomy for cancer of the sigmoid. Three months afterward he resected the growth and did the following transplantation: A loop of ileum fairly low down was taken and a portion about 5 in. in length was double clamped off. The bowel was divided between the clamps and the mesentery, with great caution to avoid blood-vessels towards its root, for a distance of 2½ inches. The continuity of the small gut was next restored by uniting the cut ends in front of the mesentery of the freed segment. The segment of the small intestine, it was found, could easily be brought into excellent position between the cut ends of the large. It was decided to employ two Murphy buttons, no risk of leakage existing because the colotomy was above the proposed junctions. This was accordingly done and proved not very difficult. After the anastomoses were completed a few stitches were placed, drawing together the cut edges of the mesenteries to avoid the possibility of internal hernia. Finally, the abdomen was closed rapidly by interrupted fish-gut sutures, and a rubber tube, with some gauze packing, was inserted at the lower end of the incision. The whole operation, from first incision to the last stitch, occupied ninety minutes. There was little or no shock.

On the seventh day after the operation the Murphy buttons were found free, the upper in the colotomy, the lower in the rectum. Twenty days after the resection, an attempt was made to close the colotomy under local anesthesia (eucaine). This proved very difficult but was eventually effected. A normal motion was passed just over three weeks after the major operation. The bowels now move naturally every morning and the patient states that very little fecal matter comes through the fistula and then only when straining at stool. Throughout the rest of the day he suffers no inconvenience.

6. **Lung Syphilis.**—In a series of 1,000 cases, notified as phthisis, Stanley found two certain of syphilis and one doubtful. In the last seven years he has collected fifteen cases, some of which have come to post-mortem examination and some are still under observation—observation which confirms the opinion that they are syphilitic and not tuberculous. The lesions produced by syphilis are various and may affect the lungs and pleura only, or the trachea and bronchi. There may be lesions in the secondary or tertiary stages. Those due to secondary syphilis are not of much clinical importance, but at the same time should not go unrecognized. The chief interest, however, is in the lesions produced in the tertiary stage. They are various and a clear idea of them is necessary for diagnosis during life and it must be admitted that descriptions of the morbid anatomy of late syphilitic lung lesions are not clear. The trachea, bronchi, lung tissue and pleura may be affected separately or all together. There may be diffuse mediastinitis. It is the incidence of the lesions in these structures that determines the clinical character of the case. The trachea is particularly liable to tertiary ulceration.

As concerns the lung tissue, the early effects produced by syphilis are: (1) An intense cell proliferation which fills the alveoli and infiltrates the septa, peribronchial, subpleural, and perivascular tissues. It is specially marked in the alveolar walls, causing the epithelium to desquamate. The vessels show the typical changes of syphilis. The process may be general or affect portions only of the lung. It gives a peculiar gelatinous appearance and may be called syphilitic pneumonia. The process is fairly rapid, judging by a case Stanley had under observation, in which the lungs were extensively involved in five or six weeks. It is, in fact, an acute interstitial pneumonia. The next variety he calls early diffuse sclerosis. The lung, which is not misshapen, looks, and still more, feels tough. It is pale in places, in others intensely mottled. It shows great increase of connective tissue in all situations, the alveolar walls particularly. Miliary gummata are plentiful. The most striking change, however, is the large quantity of proliferating elastic tissue. Stained with lithia carmine and thymol fuchsin, it may be seen penetrating in all directions, forming a dense network in the septa around the bronchi and the vessels in the pleura. Proliferation of elastic tissue occurs in tubercle, but in tertiary syphilis the process is much more intense. The alveolar changes are also marked. The spaces are often filled with large cells loaded with pigment. The changes in the vessels are those character-

istic of syphilis. The third form is a dense sclerosis. The lung may be contracted and misshapen, the pleura, whether adherent or not, is much thickened. Lastly, while there may be gelatinous infiltration, diffuse early sclerosis or intense fibrosis without coarse gumma, Stanley has not seen coarse gumma without some or all of these lesions. Thus one may regard the infiltrative and fibrosing lesions as the most important.

The symptoms and signs vary. There may be none definite when the lung is undergoing partial gelatinous infiltration and even when the lesion is an extensive sclerosis they are difficult to appreciate fully. Weakening of the breath sounds is considered an important sign and was noted in three of Stanley's cases. Symptoms and signs of lung syphilis are much more definite when the lesions are chronic. Hemoptysis is more suggestive of slow ulceration of a bronchial surface in its mucosanguineous appearance and its tendency to last for several weeks. Cough is irregular and may be paroxysmal, as happened in four of Stanley's cases. It may be very slight in proportion to the actual amount of lung lesion, for in another case it was never a prominent symptom, but on the postmortem examination there was extensive lesion of the lung tissue, but none of the bronchi, trachea, or glands. In a case quoted it was particularly interesting to note pyrexia, sweating and wasting, symptoms which occurred in some of the other cases and have been recorded by other observers. They may be regarded as intercurrent and due to mixed infection, but they certainly help in the imitation of phthisis by syphilis. Their rapid disappearance under antisyphilitic treatment is striking.

9. See THE JOURNAL, October 14, 1911, p. 1325, abstract No. 64.

12. **Mania Following Pneumonia.**—The cases to which Tyson calls attention are those in which the mania follows the pneumonia and he has had the opportunity of seeing three of these cases; the literature contains only six others. The following are the characteristic points in this form of pneumonic mania: The pneumonia is of the stenic or classical type. The people affected are mostly of a neurotic temperament. It generally happens in youngish people under 40 years of age. It is associated with great sleeplessness and there seems great difficulty in the treatment of this symptom. The disease need not necessarily be very acute or much lung involved. In fact, the amount of lung involved does not seem to bear any relation to the amount or length of stay of the mania. It occurs after the crisis. The delirium that occurs early in the disease is a much more severe type of mania than the mania following the crisis. The pathology, Tyson supposes, is toxic, but he is unable to say why some suffer in this way and others do not. The prognosis of this mania is good and it should be looked on as part of the pneumonia and should not be specially treated as a case of mania *per se*, and the question of asylum treatment need not be considered. Tyson mentions this point because in one of his cases the physician in attendance considered the mania should be treated in an asylum. Perhaps the most important thing in this trouble is to treat the sleeplessness. Food is the best hypnotic, but it may be necessary to give some morphin or some other narcotic. The bowels should be attended to. A tactful, wise and firm nurse is a necessity, and convalescence, if possible, should be carried out in the country.

15. **Skin Pigmentation.**—As a child Lancashire's patient had a patch of dark skin on the throat, which slowly increased in size. When 16 years old this patch was treated by some strong "peeling" process, after which it remained stationary in size and depth of shade. About last Christmas the discoloration began to spread from the region of the old patch down the neck toward the chest and shoulder on the left side. Recently the extension had become much more rapid. Since the onset the patient had been much troubled by attacks of shooting and stabbing pains in the pigmented area; these came on several times during the day and night and were growing daily more severe. The pain usually lasted a few minutes and—this was the interesting feature—appeared to be rapidly followed each time by a fresh deposit of pigment. The pigment involved the whole area between the sternomastoids and the left side of the neck, also the deltoid region of the left shoulder and a considerable part of the left pectoral region down to the nipple level. The pigmented area is sharply demarcated from the right front of the chest wall by a straight-lined border just to the right of the sternum and therefore just beyond the middle line of the body. The pigment itself is seen to be deposited in the form of large freckles of varying shades from dark brown to café-au-lait. On the chin there was on both sides a much fainter and more diffuse pigmentation, so slight as to be scarcely noticeable. The general health was fair. There were no signs of organic disease. Rest, a bromid draught at bedtime and an anodyne application for the shooting pains produced a remarkable improvement. The pains had ceased and there was no fresh pigmentation. On the other hand, there had been remarkable absorption of pigment, which was everywhere considerably paler.

Journal of Tropical Medicine and Hygiene, London

September 15, XIV, No. 18, pp. 269-284

19 Enteric Fever in South India. P. E. Turner.
20 Transmission of Amakebe by Means of Rhipicephalus Appendiculatus, the Brown Tick. A. Theiler.
21 Blackwater Fever. L. G. Fink.
22 Mosquito-Borne Diseases in Queensland. E. S. Jackson.

Lancet, London

September 30, CLXXXI, No. 4596, pp. 931-986

23 *Possible Toxic Origin of Some Kinds of Insanity. E. Goodall.
24 *Surgical Treatment of Some Forms of Epilepsy. W. Alexander.
25 *Viability of Human Carcinoma in Animals. C. L. Williams.
26 *Experimental Comparison Between Salvarsan, Mercury and Iodid of Potassium as Antisyphilitics. J. McIntosh and P. Fildes.
27 Case of Intussusception of Appendix Vermiformis in Adult. J. H. Watson.
28 *Foreign Bodies in Vermiform Appendix. L. A. Bidwell.
29 Case of Erysipelas Complicated with Meningitis Following Intranasal Operation; Recovery. L. A. Parry.
30 Septic Infections of Hands and Fingers. C. A. Pannett.
31 Case of Congenital Atresia of Duodenum. W. F. Roe and E. H. Shaw.

October 7, CLXXXI, No. 4597, pp. 987-1054

32 Research in Medicine and Women in Research. Sir H. T. Butlin.
33 Lucidity in Writing. H. A. Miers.
34 Middlesex Hospital of To-Day and Yesterday. C. Berkeley.
35 *Consumption and Order of Birth. W. C. Rivers.
36 Two Cases of Tumor of Prefrontal Lobe in Criminals. W. C. Sullivan.
37 *Strangulation by Volvulus in an Abnormal Sac Lying Within General Peritoneal Cavity. R. L. Knaggs.
38 Bradycardia in Association with Uremia. E. E. Laslett.
39 Open-Ether Anesthesia. J. Robertson.
40 *Case of Persistent Chyluria Markedly Influenced by Posture. F. Charteris.
41 Case of Necrosis of Almost Entire Clavicle. R. E. Halahan.
42 Representation of Honorary Medical Staffs on Boards of Management of Voluntary Hospitals. E. S. Reynolds.
43 Some Administrative Defects of the National Insurance Bill. G. P. Forrester.

23. Abstracted in THE JOURNAL, Oct. 28, 1911, p. 1491.

24. **Surgical Treatment of Epilepsy.**—There are some cases of epilepsy, says Alexander, that prove intractable to general medical and hygienic treatment, and these, unless the disease be somehow arrested, will soon terminate in imbecility and death. In these cases the affected motor area is covered by more or less edema of the pia-arachnoid and this edema probably so affects the cells of the cortex as to predispose to, or cause, the epilepsy and imbecility. Alexander says we can, by the operation of fenestration of the dura mater, drain these edematous areas and prevent reaccumulations. By the operation the progress of the disease has always been retarded in twenty cases under his operation. In several the fits have stopped and in many have been reduced to fractions of the original number.

25. **Viability of Human Cancer in Animals.**—The method adopted by Williams was that of implanting subcutaneously, with aseptic precautions, several selected portions of a malignant growth, freshly excised (pieces being put aside for microscopic observation) and following up the changes taking place in the cells of the growth by reference to sections of the implanted masses, removed for examination at different periods. The time elapsing between separation from the human body and the completion of implantation varied between twenty and twenty-five minutes. Implantation was effected by puncturing the skin with a straight cataract knife

and introducing on the point of the knife a piece of tissue having the form of a cube of 1 to 1.5 mm. The portions of tumor implanted were removed at intervals of one to thirteen days. The number of tumors used for implantation was forty-one; ten tumors were, however, employed in connection with unsuccessful implantations, so that only thirty-one need be referred to here. Of these, nineteen were epithelioma (seventeen primary growths, two secondarily infected glands), ten were scirrhus of the breast (nine primary growths, one secondarily infected gland), one was spheroidal-celled carcinoma and one rodent ulcer.

Implantation was made on the monkey (twenty tumors), rabbit (four tumors), pigeon and guinea-pig (each two tumors), cat, rat and mouse (each one tumor). The usual causes of unsuccessful experiments were suppuration and failure to recover the pieces of tumor implanted. Suppuration was not met with so frequently as was expected, even in the case of growths ulcerated on the surface; when present sometimes every piece of a tumor used for implantation became the seat of suppuration, in other cases suppuration occurred at some of the sites of implantation, while at others no inflammatory reaction occurred. A more serious difficulty was failure to recover the portion of tumor implanted. Portions of human carcinoma implanted into animals were observed during the first five days to retain their vitality and to exhibit mitosis after implantation. After the expiration of this period no evidence of vitality was observed. Mitosis was markedly inhibited within twenty-four hours of implantation, while the life of the implanted cells was abolished less rapidly.

26. **Salvarsan, Mercury and Iodid of Potassium as Antisyphilitics.**—The authors found that salvarsan in experimental syphilis of the rabbit possesses spirocheticidal properties much in advance of mercury. Potassium iodid is not a direct antisyphilitic.

28. **Foreign Bodies in Vermiform Appendix.**—Bidwell has found a foreign body in about 20 per cent. of the appendices which he has removed. The interesting point is that a foreign body by itself sets up very little irritation and does not produce acute inflammation; it is only when a fecal concretion forms around it that acute appendicitis will occur. According to many authorities, no foreign body or fecal matter can enter a healthy appendix, and it is stated that some previous inflammation must occur in order to make it possible for the body to enter. If this is the case, a foreign body by itself could not have very much influence in producing appendicular disease. It is, however, more reasonable to suppose that the irritation of the foreign body excites an extra secretion of mucus, which is deposited on the body, producing the concretion and so becomes the starting point of an attack of appendicitis.

35. **Consumption and Order of Birth.**—Rivers observed in patients' case-sheets which showed ordinal position in the family, a large number of entries of eldest-born children, and from this observation conceived the idea that clinical pulmonary tuberculosis might affect such persons more than others. Brehmer's and Riffel's reports show that both first- and second-born offspring appear subject to consumption at a very much higher rate than younger members of a family. Rivers' own observations in 263 cases confirm those of other clinicians. Mitchell, among 443 idiots and imbeciles, found 138 first-born, or 31.1 per cent. Langdon Down claims liability to idiocy among primiparous children because 24 per cent. of the 2,000 idiots (illegitimate largely excluded) examined by him were first-born children. Among Wilbar's 675 there were 191 first-born; among 100 of Beach's, twenty. Thus, respecting the exact amount of increased risk of developing phthisis that an eldest child runs, no direct data exist from which to calculate. As matters stand, one may say that whereas in 1,228 consumptives (494 upper middle-class Germans; 353 middle- and lower-class inhabitants of Lancashire, London, and Northumberland, and 381 mainly lower-class Lancastrians) one should find 196 eldest children, one actually does find 281, i. e., eldest-born consumptives are in excess, say, 40 per cent.

Of 141 of Rivers' last cases there is one patient with diabetes mellitus, three who suffer from hay fever, and three the subjects of congenital xerodermia. The diabetes patient is an eldest child; two of the hay fever patients are likewise, while the remaining one is second-born, and two of the ichthyotics are eldest-born. Yet the first- and second-born of these 141 only number fifty-eight and the first-born alone only twenty-eight. This, in Rivers' opinion, would seem to point to the conclusion that the tendency of the eldest-born to become consumptive is an innate tendency and the hypothesis is strengthened, he says, if we appeal to the literature of the subject. Lunatics and idiots are certainly very liable to consumption, and, as has been seen, it is exceedingly likely that they are disproportionately often eldest-born. Again, if faulty upbringing by inexperienced parents is to be made responsible for elder-born criminals, lunatics, idiots and perhaps men of genius, this would render ordinary human responsibility sufficiently formidable. The existing evidence negatives the view that infection is the sole cause.

37. **Strangulation by Volvulus.**—In the mid-region of the abdominal cavity in Knaggs' case was a large rounded cyst or sac, through the semi-transparent wall of which distended coils of bowel could be seen. The upper coils were large and pale and had a somewhat transverse direction; the lower were black, as if the subject of strangulation, and had an obliquely vertical arrangement. Below the cyst, the lower portion of the abdomen, which was little more than the pelvis, was occupied by coils of black small intestine which concealed the terminal portion of the large gut. Above the cyst and encroaching on its shelving upper surface, lay the liver, and in the left hypochondrium the stomach. The great omentum was huddled up into a mass which fitted into the space between the cyst and the stomach. The colon was not visible, but it was found to encircle the cyst, except at its lowest part, and to be attached to its wall. To permit of the further investigation of parts the strangulated small bowel occupying the area below the cyst was removed. It was a single loop some 3 or 4 feet long and the two ends of the loop passed into the cyst through an aperture on its lower surface. The two ends were tied a few inches from the aperture. The whole loop was deeply congested, of a purplish-black color and infiltrated with blood. It was not constricted at the neck and the finger could be introduced alongside the gut through the aperture into the cyst. The entrance to the sac looked downward and was on the level of the promontory of the sacrum. It was large enough to admit three fingers. The cyst occupied the small intestine area within the arch of the colon.

To continue the examination it was opened by a central vertical incision through its whole length which terminated by dividing the boundary of the aperture. The two cut ends of the strangled loop were continuous with similarly affected coils within the sac. There had been no strangulation by the neck of the sac and no signs of constriction were presented by the portions of bowel that occupied it. The greater part of the ileum was in this deeply congested state, which was evidently due to a twist of the lower portion of the mesentery, but the exact mechanism was not made out, as owing to the inexperience of the manipulator the relations were disturbed and lost, and the previous removal of the loop outside the sac added to the difficulties of its demonstration. The jejunum was distended but not strangled. On the posterior surface of the sac was the quite normal attachment of the mesentery. It lay entirely within the sac. At the upper part the third and fourth parts of the duodenum were in their natural position and covered as usual by peritoneum. The terminal portion of the ileum passed out of the opening to join the cecum, which lay just outside and to the right of the mouth of the sac. The ileum at this point was attached by its mesentery, which blended with the margin of the aperture on the right side. The condition may be fairly described as a second and abnormal lesser peritoneal sac, whose natural contents were the small intestine and its mesentery. Some of the contents had escaped through the orifice into the general peritoneal cavity.

40. **Persistent Chyluria.**—When Charteris' patient was upright the urine was practically free from fat, but if he reclined at an angle greater than 45 degrees, he promptly began to pass milky urine; but if he sat in an upright chair the urine remained clear. The most milky urine was passed when he lay flat on his back. On the other hand, he could lie flat on his face without the urine becoming milky, but it became milky as soon as he turned round and lay on his back. The conclusion Charteris came to was that the chyluria was due to some intermittent pressure exerted on the thoracic duct by some factor which only became operative when the patient assumed certain attitudes. Probably the obstruction was a pedunculated calcareous gland. There was no enlargement to be felt in any of the abdominal glands and a Roentgen-ray examination failed to reveal any calcareous masses.

Bristol Medico-Chirurgical Journal

September, XXIX, No. 113, pp. 201-287

44 Medical Organization and Growth of Medical Sciences in Seventeenth Century, Illustrated by Lives of Local Worthies. G. Parker.
45 End-Results of Operations on Stomach and Duodenum. A. R. Short.

Annales de Gynécologie et d'Obstétrique, Paris

September, XXXVIII, No. 9, pp. 497-560

46 Influence of Syphilis in Producing Deformity in the Fetus. (De l'influence de la syphilis sur la genèse des anomalies et des monstruosités fœtales.) P. Rudnux and V. Le Lorier.
47 Primary Chorio-Epithelioma in Broad Ligament Six Years After Last Pregnancy. P. Lecène.
48 Abnormal Insertion of Umbilical Cord; Three Cases. (Insertion vicieuse du cordon.) L. Job.

Annales de l'Institut Pasteur, Paris

September, XXV, No. 9, pp. 625-704

49 *Experimental Research on Defense of Organism Against Tuberculosis. (Sérothérapie-immunité.) A. Calmette and C. Guérin.
50 Thoracic Tuberculosis in Cattle Generally of Digestive Origin. (A propos du mémoire de M. Chaussé.) A. Calmette and C. Guérin.
51 Passage of Diphtheria and Tetanus Antitoxin into the Aqueous Humor. (Sur le passage de l'antitoxine diphtérique et tétanique dans l'humeur aqueuse.) V. Morax and G. Loiseau.
52 Antibodies in Aqueous Humor of Immunized Animals. (Recherches sur la présence des anticorps dans l'humeur aqueuse des animaux immunisés.) Y. Manouélian.
53 Aqueous Humor Not Bactericidal for Anthrax Bacilli. (Recherches sur la prétendue action bactéricide de l'humeur aqueuse à l'égard de la bactéridie charbonneuse.) Y. Manouélian.
54 Trypanosomes in Frogs and Toads in Indo-China. (Trypanosomes des batraciens du Tonkin.) C. Mathis and M. Leger.
55 Zymase is a Diastase. (La Zymase est-elle une diastase?) A. Lebedeff.
56 The Inulase of Aspergillus Niger. J. Boselli.

49. See editorial in THE JOURNAL, October 28, p. 1461.

Presse Médicale, Paris

September 9, XIX, No. 72, pp. 721-728

57 Leprosy. (Etat actuel de nos connaissances sur la bactériologie et l'étiologie de la lèpre.) E. Jeanselme.

September 23, No. 76, pp. 753-760

58 *Polyneuritis and Polyneuritic Pseudotabes with Gastric Ulcer. (Les complications nerveuses de l'ulcère de l'estomac.) M. Klippel and M. P. Weil.

September 27, No. 77, pp. 761-768

59 Syphilitic Lesions of Meninges and Vascular System. (Etude biopsique de la méningo-vascularite syphilitique.) P. Ravaut.
60 Country Wells. (Hygiène rurale. Les puits.) E. Arnould.

September 30, No. 78, pp. 769-784

61 *Surgery of the Spleen. (Chirurgie de la rate.) M. Hartmann.
62 Extension Appliance for Fracture of Forearm. (Attelle à extension continue pour les fractures de l'avant-bras.) H. Judet.
63 *Post-Typhoid Epilepsy. (De l'épilepsie consécutive à la fièvre typhoïde.) J. Chalier and Juilhe.
64 Alternating Arhythmia. (Le rythme alternant.) C. Lian.

58. **Nervous Complications of Gastric Ulcer.**—Klippel and Weil think that they were the first to call attention (1909) to polyneuritis developing as a complication of gastric ulcer. Their assertions were confirmed by Couréménos and Conos. Other disturbances in the digestive tract have been incriminated as the cause of nervous disturbances, Christani having reported a case of polyneuritis from coprostasis, and Duvernay one of peripheral neuritis from stasis of stomach content, and cured by a gastro-enterostomy. Babinski ascribes peripheral neuritis in some cases to auto-intoxication from the intestine and Klippel has reported cases of neuritis from changes in the liver. In the two cases reported in detail the diagnosis of gastric ulcer was unquestionable, as also in a case cited from the literature; all had paresis with loss of the deep and superficial reflexes while the nerves and muscles were more or less tender—the syndrome indicating flaccid quadriplegia resulting from polyneuritis. There was nothing to suggest tabes, but in one case the neuritis was more of the Korsakoff type. In another case reported the clinical picture suggested tabetic gastric crises in an old syphilitic, but the trouble proved to be a polyneuritic pseudotabes complicating gastric ulcer in a syphilitic. As the gastric ulcer had caused no appreciable symptoms, the pain had been the first sign of trouble. It is probable that many of the cases published as hemorrhagic tabetic gastric crises belong in this category of gastric ulcer complicated by polyneuritis. There have been thirteen of these hemorrhagic gastric crises cases reported in French literature.

61. **Surgery of the Spleen.**—Hartmann describes with fifteen illustrations the surgical treatment of spleen affections and discusses the results to date in various clinics. The high mortality with rupture of the spleen imposes an immediate operation, he says, and splenectomy offers the best prospect for success. With the enlarged spleen of malaria, splenectomy seldom does much good unless the spleen is compressing the neighboring organs. Fevrier found a mortality of 26 per cent. in 117 cases of this kind, but it was only 13 per cent. in Johnston's sixty-one cases since 1900, and if the splenectomy is restricted to a movable malarial spleen, the mortality is still less, there having been only one death in Bessel Hagen's twenty-six cases.

63. **Epilepsy Consecutive to Typhoid.**—Chalier and Juilhe report the case of a previously healthy young man who developed epilepsy after a severe attack of typhoid, the seizures typical of true epilepsy during the six years to date. Dide found typhoid antecedents in seven of 120 epileptics examined. The typhoid evidently induces injury of the nerves and the resulting cicatrix becomes one of the causal factors of the epilepsy. Such a cicatrix may remain latent until some disturbance in the circulation or other insignificant cause may bring on what Pierret calls recall phenomena. These phenomena may be motor, sensory or psychic, or they may be of the type of the epileptic seizure.

Archiv für Gynækologie, Berlin

XCIV, No. 3, pp. 599-925. Last indexed Sept. 9, p. 933

65 Atresia of Follicles in Mammalian Ovaries. (Follikelatresie in Säugetierovarien.) W. Benthin.
66 *Placenta Prævia. (Zur Behandlung der Placenta praevia.) B. Schweitzer.
67 Acetonuria During Pregnancy and the Puerperium. (Die Acetonkörper des Harnes bei Gebärenden und Wöchnerinnen.) B. H. Jägerroos.
68 The Muscle Fibrils in the Uterus and in Uterine Tumors. (Zur Kenntnis der Myofibrillen im Uterus und in Uterusgeschwülsten.) F. Daels.
69 *Retroflexion of the Uterus. (Retroflexio uteri.) F. Lehmann.
70 Research on Syncytiotoxin. (Experimentelle Studien mit menschlichen Syncytiotoxin.) W. Weichardt, F. Mosbacher and E. Engelhorn.
71 Hormone from the Ovaries and the Uterus Musculature in Origin and Arrest of Uterine Hemorrhage. (Rolle der Ovarien und der Uterusmuskulatur bei der Entstehung und dem Verlaufe der Uterusblutungen.) A. Theilhaber.
72 Influence on Lactation of Placenta, Fetus and Ovaries. (Placenta, Fötus und Keimdrüse in ihrer Wirkung auf die Milchsekretion.) B. Aschner and C. Grigoriu.
73 Histogenesis of Adenocancroids of the Uterus. O. Büttner.
74 Modifications of Blood-Pressure and Heart Action in Pregnancy and Puerperium. (Blutdruck und Herzarbeit in der Schwangerschaft, während der Geburt und im Wochenbett.) R. T. Jaschke.
75 Psammoma Sand in the Ovary. (Ueber Psammomkörner im Ovarium.) - C. Koch.
76 *Tuberculosis in 3,514 Female Cadavers. (Die Tuberkulose bei der Frau, insbes. die Bauchfell- und die Genitaltuberkulose, die Tuberkulose des uropoetischen Systems, die Tuberkulose während Schwangerschaft und Wochenbett, auf Grund von 3,514 Sektionen.) H. Schlimpert.

66. **Placenta Prævia.**—Schweitzer reviews the experiences in the last four years with 100 cases of placenta prævia at the Leipsic maternity in charge of Zweifel. These later experiences teach, he says, the advantages of hastening delivery when there is severe hemorrhage in the second half of pregnancy. Rupture of the fetal membranes is the prefer-

able procedure, but when this does not succeed in arresting the hemorrhage or the presentation is not favorable he uses the inflatable bag if the mother and child are in good condition; he prefers combined version if the mother is growing weak and the child is dead or not viable. Cesarean section should be preferred for the cases of threatening hemorrhage, the cervix still closed; in the infected cases, combined version with perforation or perforation alone at once. He advises in the home, combined version and patient waiting for spontaneous expulsion. Every effort should be made to insure asepsis and prevent further loss of blood. His observation having shown that the blood has less coagulating power when there has been considerable hemorrhage, he uses an astringent tampon, the gauze dipped in alcohol or a solution of alum instead of the ordinary iodoform gauze. Hysterectomy may be required for threatening after-hemorrhage from laceration or atony.

69. **Retroflexion of the Uterus.**—Lehmann has examined 100 women, including fifty with retroflexion and fifty without, after filling the bladder as full as possible and having the women recline or stand alternately and then examining them again half an hour after the bladder has been emptied. He devotes twenty-four pages to the tabulated findings in each case to study whether the bladder functioning can alter the position of the uterus, his conclusions being negative. Other experiments showed that the uterus can correct its position by contraction of the musculature under the influence of induced electricity, but the long application and the strength of the current required render the procedure scarcely applicable in the clinic to date. Of the total 2,000 patients with dislocations of various kinds, thirty-seven were permanently cured by pessary treatment alone; there were no complications in seven cases, but thirty patients with some slight affection in the ovaries or tubes or around the uterus had the displacement cured by the pessary treatment alone. His experience thus indicates that mild complications rather favor pessary treatment.

76. **Tuberculosis in 3,514 Female Cadavers.**—Schlimpert found signs of tuberculosis in 2,173, that is 61.8 per cent. of the total 3,514 cadavers, but in only 29 per cent. had it been diagnosed during life. His figures show further that nearly 50 per cent. of the population furnishing the material die of tuberculosis. The highest mortality from tuberculosis was between 20 and 30, next in the three following decades. The lungs were affected in 84.3 of the 2,173 tuberculous cadavers, the intestines in 32.3, the peritoneum in 4.9 and the genitals and meninges in 3.35 per cent. each, the pericardium in 2.2 and the urinary system in 1.4 per cent. No evidence of a primary isolated tuberculosis of the genital organs or of the urinary apparatus was discovered in any instance. A blood-borne origin was possible in the majority of the genital cases, probable in twenty-eight of the seventy-three cases and certain in five. The peritoneum was involved in 42.5 per cent. of the seventy-three cases of genital tuberculosis. There was no case in which the genital tuberculosis seemed to have been the cause of death; in 95.9 per cent. death was due to tuberculous lesions elsewhere. In the tuberculosis of the urinary system, infection was blood-borne and descending in most cases. Nearly 8 per cent. of the 3,514 women were pregnant or had just been delivered, and 139 of these 273 were tuberculous, that is, 15.9 per cent. The data confirm the assumption that tuberculosis is aggravated by child-bearing.

Berliner klinische Wochenschrift

October 2, XLVIII, No. 40, pp. 1785-1828

77 Salvarsan in Syphilis. (Die Salvarsan-Behandlung der Syphilis—Betrachtungen über die Nomenklatur der Syphilis.) M. v. Zeissl. (Der weitere Verlauf der Salvarsanbehandlung im Kl. Marinelazarett Kiel-Wik.) W. Gennerich.
78 Tuberculosis Mortality in Prussia in 1910. B. Fränkel.
79 Sugar Content in the Blood in Addison's Disease. (Ueber den Blutzuckergehalt bei Addison'scher Krankheit.) S. Bernstein.
80 Determination of Diastase in the Urine. (Bestimmung des Diastasegehalts des urins.) A. Galambos.
81 Simulation of Albuminuria by Mother of Child Patient. S. Hadda.
82 *Biologic Action of Radio-Active Mesothorium. (Biologische Wirkung des Mesothoriums. II. Strahlenwirkung und Verdauungsfermente.) D. Minami.
83 Advantages of Lime in Culture Medium. (Ueber Bakterienwachstum auf kalkhaltigen Nährböden.) A. Kindborg.
84 Permeability of Collodion and "Transpellicular" Treatment in Dermatology. (Ueber transpellicular Behandlung, insbesondere mit Schälcollodium.) P. Unna, Jr.
85 *Pfannenstill's Two-Route Method of Treating Lupus. (Ueber die Behandlung des Lupus vulgaris im Gaumen mit Jodnatrium und Wasserstoffsuperoxyd nach Dr. Pfannenstill's Methode.) J. Schaumann.
86 Operative Treatment of Pes Equinus. (Behandlung des Spitzfusses.) G. Müller.

82. **Mesothorium.**—This is a radio-active substance which is being extensively investigated in Germany, as there is no production of radium in that country, while mesothorium is an accessible by-product. The present article reports research on the action of the rays on the digestive ferments, part of the research now under way on the biologic action of mesothorium.

85. **The Two-Route Method in Treatment of Lupus.**—Schaumann describes excellent results in a case of lupus of the face and hard palate in which he applied Pfannenstill's method, acting on the lesion by potassium iodid taken internally and application of ozone or a dioxid externally. The latter was applied by means of a prothesis fitting over the hard palate, holding the impregnated cotton against the lesion. He ascribes the benefit to a caustic action of the combining drugs, as the efficacy depends on the setting up of an ulceration. He therefore warns that the method is not applicable to lesions on the face as it is liable to induce mutilation which is unnecessary by the Finsen method of radiotherapy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

October 1, XLI, No. 28, pp. 961-992

87 *Treatment of Heart Disease. (Behandlung von Herzkrankheiten.) H. Eichhorst.

87. **Heart Disease.**—Eichhorst reviews the general principles of treatment of heart disease, insisting that the general practitioner often fails to appreciate the wonderful benefit that can be derived from rest and nourishing food, without drugs. He is liable to ascribe the benefit to the drug he happens to prescribe, but it cannot be emphasized often enough, Eichhorst insists, that complete repose is the most indispensable measure in treatment of weakness of the heart muscle whether drugs are given or not. Next in importance is the diet, especially milk. Milk is easily digested, nourishing and has a diuretic action, but even this should not be allowed in excess and not for too long. The Karell cure often renders good service in heart disease with edema. The patient is given only 200 c.c. of milk four times a day for four days, and the edema disappears and the heart action improves remarkably even in cases refractory to drugs. He warns, however, that the Karell cure may induce collapse in rare cases, so that it is scarcely advisable outside of an institution. If repose and a milk diet have proved inadequate by the end of twenty-four or forty-eight hours to strengthen the myocardium, it is time to give a heart tonic unless conditions had imposed the necessity for this from the start. Another measure which he has often found useful is upward stroking of the edematous legs, the feet raised for a time morning and evening, with passive flexion of the legs at the ankles, knees and hip joints, striving to pump the edema out of the legs. Mechanical measures, puncture or incision, have been known to entail fatal collapse, as also hot air baths, but venesection often gives surprising relief. When the heart has recuperated, the physician must insist on physical and mental rest; physicians seldom recognize the importance of emotional factors in heart disease. Eichhorst reports three cases in which young people with well compensated heart trouble died suddenly after a sudden emotion of anger or delight. Strict individualization is necessary in deciding as to marriage for girls with valvular defects; he has a patient of 39 who has borne seven children without mishap, notwithstanding mitral stenosis since the age of 10, but delicate, anemic, sensitive girls should be dissuaded as a rule from matrimony.

Deutsches Archiv für klinische Medizin, Leipsic

CIII, Nos. 5-6, pp. 423-618. Last indexed October 28, p. 1196

88 Elimination of Creatin and Creatinin in Disease. (Kreatinin- und Kreatinausscheidung unter pathologischen Verhältnissen.) A. Skutetzky.
89 *Spectroscopy in Diagnosis of Occult Hemorrhage in Gastro-Intestinal Canal. (Bedeutung der spektroskopischen Blutproben.) K. Csepai.

99 Epilepsy and Convulsions in Relation to Gastro-Intestinal Disease. (Die Epilepsie und andere Krampfformen in ihren ätiologischen Beziehungen zu den Erkrankungen der Verdauungsorgane.) W. Ebstein.
91 *Folds in the Rectal Mucosa. (Falten der Mastdarmschleimhaut.) H. Lindenberg.
92 *Inhibition by Serum of Mercuric Chlorid Hemolysis. (Die Sublimathämolyse und ihre Hemmung durch das Serum.) F. Port.
93 The Symptoms of Prolonged Anuria. (Die klinischen Erscheinungen bei langdauernden Anurie.) W. Brasch.
94 The Electrocardiogram. (Zu der Klinik des Elektrokardiograms.) W. v. Wyss.
95 Variations in Concentration of the Serum in Health. (Schwankungen der Serumkonzentration beim gesunden Menschen.) A. Böhme.
96 Elimination of Nitrogen and Salt Through Skin in Kidney Disease. (Welche Mengen von Stickstoff und Kochsalz werden durch die Haut von Nierenkranken ausgeschieden?) F. O. A. Loofs.
97 *What Becomes Later of "Growth Hypertrophy of the Heart" and "Juvenile Arteriosclerosis?" (Wie verhält sich die sogen. "Wachstumshypertrophie des Herzens" und die "juvenile Arteriosklerose" im späteren Lebensalter.) A. Faber.
98 Anatomic Changes in Sweat Glands During Internal Diseases. (Gibt es anatomische Veränderungen der Schweissdrüsen bei inneren Krankheiten?) W. Veil.

89. **Spectroscopic Diagnosis of Occult Blood.**—Csepai asserts that examination of the stools for traces of invisible blood with the spectroscope gives far more reliable findings than chemical or other tests for occult hemorrhage. The reagents needed for the work are cheap and durable while the technic is simple and rapid. He has the patient refrain from meat and green vegetables for three days before the examination. Then to 5 gm. of the stool are added 5 c.c. of concentrated acetic acid plus 5 c.c. ether and 5 c.c. alcohol. The mixture is ground up well in a mortar and then filtered through an unmoistened pleated filter until 2 or 3 c.c. of fluid collects in the test tube. He then adds 1 or 2 c.c. of pyridin to the extract, then 1 or 3 drops (no more) of ammonium sulphid solution; the spectroscope then shows the spectrum for hemochromogen if there are traces of blood in the fluid. The test is complete in six or eight minutes. The reagent $(NH_4)_2S$ must be made up fresh and be kept in a dark colored bottle with glass stopper. It keeps perfectly for ten days. No time is to be lost after adding the reagent before examining with the spectroscope as the spectrum soon fades. An ordinary spectroscope with artificial light answers the purpose. He tabulates the comparative findings with this and other tests, all showing the reliability of this simple technic and that it is as sensitive as the catalytic tests.

91. **Ridges in Rectal Mucosa.**—Lindenberg found one to six folds or valve-like protrusions in the rectal mucosa in all but one of nine cadavers examined with the rectoscope.

92. **Mercuric Chlorid Hemolytic Test.**—Port examined the serum of thirty-one patients with various affections to determine the relative protecting power of the individual serum against the hemolytic action of mercuric chlorid and of saponin. The index of the protecting power was abnormally low with gastric cancer, pregnancy nephritis and tuberculosis, while it was abnormally high in diabetes, typhoid and severe parenchymatous nephritis.

97. **What Becomes Later of "Growth Hypertrophy of the Heart" and Juvenile Arteriosclerosis.**—Faber has been reexamining lately thirty persons who in youth presented signs of what was called at the time "growth hypertrophy of the heart" or juvenile arteriosclerosis. He tabulates the clinical findings then and now; in very few has the cardiovascular system developed to entirely normal conditions since. There is still in the majority some evidence that this system is a little below par.

Deutsche medizinische Wochenschrift, Berlin

September 28, XXXVII, No. 39, pp. 1777-1824

99 The Progress in Infant Feeding in the Last Few Years. (Ueber Säuglingsernährung.) H. Koeppe.
100 Emotional Vasomotor Blood Tides. (Zur Pathologie der psychophysiologischen Blutverschiebung.) J. Citron.
101 Sterilizing Action of Mercuric Chlorid. (Vergleichende Untersuchungen über die Desinfektionswirkung von Sublimat und Sublamin.) F. Croner and C. Naumann.
102 *The Poison of Mosquito and Midge Bites. (Ueber das Gift der Stechmücke. Ein Beitrag zur "Mückenfrage.") C. Bruck.
103 Resistance of Spirochetes to Arsenic. (Experimentelle Untersuchungen über die Arsenfestigkeit der Spirochäten.) M. Rothermund; and J. Dale
104 Combined Salvarsan and Mercury Treatment in Syphilis. (Ueber Abortivkuren der Syphilis durch kombinierte Quecksilber-Salvarsanbehandlung.) E. Arning.
105 Behavior of Salvarsan in the Organism. (Verhalten des Salvarsans im Organismus.) G. Stümpke and P. Siegfried.
106 Experiences with Salvarsan in Syphilis. (Weitere Erfahrungen mit der intramuskulären und intravenösen Salvarsaninjektion.) N. Joannidès.
107 *Cancer of the Bladder. (Blasenkarzinome und -sarkome.) H. Riese.
108 Gunshot Wound from Pistol, the Muzzle in Rectum; Recovery. (Zur Kasuistik der Bauch-Schussverletzungen.) R. Herzenberg.

102. **Mosquito Poison.**—Bruck has isolated from the common mosquito its toxin, which he calls culicin. He obtained it by grinding the mosquitoes, *Culex pipiens*, in a mortar with salt solution containing a little glycerin and centrifugating. He found that culicin contained a hemolysin and an urticaria-producing principle, and describes research with it and research on mosquitoes to find whether they could convey the syphilis spirochetes. He never was able to get the mosquitoes to bite a syphilitic lesion; they always avoided the morbid tissues and settled only on the sound tissue encircling them. At the same time he found that the mosquitoes can take up spirochetes on their feet and thus transmit infection. In his one positive experiment in this line, from a mosquito that had been in contact with a primary sore on a rabbit and, fifteen minutes later, had had its legs rinsed with salt solution, he obtained a motile, unmistakable *Spirocharta pallida*, which was found in the rinsing water.

107. **Cancer of the Bladder.**—Riese removed a carcinoma from the bladder of a woman of 66 over a year ago and there has been no sign of recurrence since. In another case the patient died of senile weakness four years after removal of a carcinoma occluding the mouth of the left ureter in the bladder. There was no sign of recurrence in this case and neither in a third case in which the interval since has not been so long. He removed the bladder on account of sarcoma in a girl of 10 with gonorrhea, but the debilitated child succumbed an hour later. Notwithstanding the fatal outcome in this case, he is convinced that removal of the bladder for malignant disease is not a difficult operation, comparatively speaking, and it offers good prospects in appropriate cases.

Deutsche Zeitschrift für Chirurgie, Leipsic

August, CXI, Nos. 1-3, pp. 1-339

109 *Operative Treatment of Pulsating Exophthalmos. (Die chirurgische Behandlung des durch Aneurysma arteriovenosum der Carotis int. im Sin. cavernosus hervorgerufenen pulsierenden Exophthalmus.—Ein neues Verfahren.) O. Zeller.
110 When Should Interval Appendicectomy Be Done? (Wann soll im Intermediärstadium und Spätstadium der akuten Appendizitis operiert werden?) W. Merkens.
111 Research on Fat Embolism. (Untersuchungen über Fettembolie.) N. B. Grundahl.
112 Laceration of the Spleen. (Subkutane Zerreissungen der gesunden und kranken Milz.) Vorwerk.
113 Unusual Complications of Cholelithiasis. H. Finsterer.
114 Isolated Dislocation of the Scaphoid Bone. (Isolierte Kahnbeinverrenkungen am Fuss.) W. Goebel.
115 *Nerve Blocking for Anesthetizing the Legs and in Treatment of Sciatica. (Ueber Leitungsanästhesie an der unteren Extremität mit Bemerkungen über die Technik von Injektionen an den Nervus ischiadicus bei Behandlung der Ischias.) A. Läwen.
116 Bladder Diverticulum. (Zur Diagnostik und Behandlung des angeborenen Blasendivertikels.) F. Krobs.
117 Cured Rupture of Duodenum. (Ein geheilter Fall von Duodenalruptur.) W. Wolf.
118 Extradural Anesthesia. (Experimentelle Untersuchungen über Extraduralanästhesie.) A. Läwen and W. v. Gaza.

109. **Pulsating Exophthalmos.**—The exophthalmos may be the result of an arteriovenous aneurysm of the internal carotid in the sinus cavernosus. When this is the case the symptoms are characteristic, especially the cessation of the pulsation and noises when the carotid is compressed. Systematic compression of the common carotid is suggested by Zeller as a logical method for relieving and curing the trouble, permitting a collateral circulation to develop, while the heart is trained to its increased task and it is determined whether the patient is able to stand the exclusion of the carotid. If symptoms on the part of the brain develop under compression of the carotid, ligation of the carotid is contra-indicated. If the systematic compression fails to relieve, Zeller severs the internal carotid between two ligatures as close to the base of the skull as possible. The external carotid should not be

ligated, for reasons which he enumerates. A course of tonics and heart stimulants should precede the operation if necessary, and it should be restricted to the severest cases. It can be done under local anesthesia. If no brain symptoms develop under systematic compression of the carotid, the ligation is not contra-indicated even in the elderly. Heart tonics and venesection may be needed after the operation. He discusses the experiences in this line on record to date, with the various attempts that have been made to cure pulsating exophthalmos, and reports a case of traumatic origin. His cases teach the value of ligation of the internal carotid in these cases and that ligation of the external branch is useless. Complications in his case prevented a successful outcome, but the phenomena observed in this case possibly point the way to successful management of such cases in future.

115. **Nerve Blocking in the Thigh.**—Lilwen has been studying the best technic for injecting an anesthetic into the thigh to block conduction of pain in the sciatic nerve, similar to Braun's *Leitungsanästhesie* of the leg. The anesthetic seems to diffuse into the nerve trunk or the special ganglia or even into the spinal cord, and thus arrest the pain. The anesthesia thus induced permits in thin patients a painless amputation. The patient lies in the ventral decubitus and the needle is inserted at a point 2 cm. outside of the tuberosity of the ischium, and about 20 or 30 c.c. of fluid is injected perpendicularly at the assumed depth of the nerve trunk. Then the needle is partly withdrawn and pointed outward and a little more of the anesthetic is injected. The perpendicular injection blocks the tibial nerve, especially if a little stronger concentration of the anesthetic is used at this point. Then the needle is introduced again at a point 3 cm. inside of the greater trochanter, slanting it inward a little and ejecting the liquid at three depths, pointing it so that all the soft parts between the two injecting points are infiltrated with the solution. In one of the ten cases reported in detail he thus blocked the nerves, including the femoral, tibial and obturator, using a total of 1.8 gm. novocain in thirty minutes, with the result that the whole leg became insensible to needle pricks and the leg was amputated without the slightest pain, not even when the nerves were pulled. He thinks this technic for the injections is promising for treatment of sciatica.

Medizinische Klinik, Berlin

October 1, VII, No. 40, pp. 1527-1564

119 *Cholelithiasis. (Erkennung und Behandlung des Gallensteinleidens.) F. Schultze.
120 Prevention of Puerperal Fever. (Verhütung des Kindbettfiebers.) C. J. Gauss.
121 Management of Contracted Pelvis. (Therapie bei engen Becken.) J. Richter.
122 *Treatment of Pleurisy Without Effusion by Fastening Down the Arm. (Behandlung der Pleuritis sicca unter Ruhigstellung durch Armfesselung.) E. Kuhn.
123 *Breathing Cool Air in Treatment of Nasal Catarrh. (Zur Behandlung des Nasenkatarrhs.) C. P. Dannehl.
124 Prophylaxis of Ophthalmia Neonatorum. (Beobachtung aus der Praxis bei der prophylaktischen Einträufelung in die Augen Neugeborener.) J. Frommholz.
125 Operative Treatment of Exophthalmic Goiter. (Umfrage über die chirurgische Behandlung der Basedowschen Krankheit.) A. Neumann, O. Binswanger, A. v. Eiselsberg and Ortner.
126 High Colloidal Nitrogen Content in Urine Not Pathognomonic of Cancer. (Zur klinischen Bedeutung und Kritik eines Harnbefundes bei Carcinomatösen nach Salkowski.) S. Ishioka.

119. **Cholelithiasis.**—Schultze outlines a certain method of procedure for differentiating gall-stone disease by exclusion. He first seeks to exclude epigastric hernia, the symptoms from which may simulate those from gall-stones; then he excludes circumscribed peritonitis, gastric ulcer and cancer. With the former the pains are connected with the meals, while in cholelithiasis the attacks of pain may occur at any time, often suddenly in the night. Duodenal ulcer, and affections of the small and then of the large intestine are next considered. Especially with nervous and membranous colitis, the pains are liable to resemble those with gall-stones except that they recur more frequently, and are not accompanied by jaundice. Appendicitis may induce adhesions causing disturbances similar to those from gall-stones. With acute pancreatitis the collapse is severer than with gall-stone colic and the stomach region generally protrudes while otherwise the trouble may suggest ileus. The possibility of gastric crises should also be borne in mind and the reflexes tested and hyperesthetic zones sought for. Schultze has had cases of coincident gastric crises and gall-stones. Calculi in the kidney may be excluded by roentoscopy and wandering kidney by manual examination. With pain from spastic conditions in the stomach or intestine, the gall-bladder is not specially tender. Differentiation of cholelithiasis is unusually difficult when the patient is inclined to hysteria. Tenderness on palpation of the right hypochondrium and especially at the point where the ninth intercostal nerve pierces the rectus muscle, is the most reliable sign of gall-stone trouble when connected with colics. Another characteristic sign is the radiation of the pain to the right shoulder and into the right arm. In some cases this radiated pain dominates the clinical picture, and the patients are treated for years for assumed neuritis until passage of a gall-stone cures the "neuritis." When "neuralgia" of this character is complained of, the skin of the upper abdomen should be tested for extrasensitiveness to contact. The right upper abdominal wall is also liable to be left rigid during and after gall-stone colic. Schultze insists on bed rest, possibly for weeks, for patients with gall-stone pains until the region is no longer tender. Hot compresses to the upper abdomen and hot water internally aid in the cure, supplemented by plenty of water to drink and five meals a day of readily digestible food to keep the bile flowing freely. The meal is the best cholagog, he adds, and no pharmaceutical means are known to dissolve or expel gall-stones.

122. **Immobilization of the Arm in Treatment of Pleurisy.**—Kuhn ties the wrist of the affected side to the thigh on the other side, thus preventing any movement of the arm and shoulder and giving the inflamed pleura a chance to heal. He has found this measure very useful in several cases of pleurisy without effusion, fastening the arm down under the clothing and not releasing it until the temperature was permanently normal. He warns that tuberculosis contra-indicates this measure as the immobilization is not complete enough to be beneficial in this infection; the partial immobilization thus induced tends rather to aggravate a chronic process.

123. **Breathing Exercises in Treatment of Nasal Catarrh.**—Dannehl applies cool air to reduce the congestion in the nose, having the patients breathe moderately deep through the most congested side, expelling the warmed air rapidly through the mouth, inspiration longer than expiration. The best method is to do these exercises during a tranquil walk morning and evening. If they have to be done in the house, he has the patient recline on each side in turn during the breathing exercises. He reports excellent results from them even in chronic catarrh.

Monatsschrift für Kinderheilkunde, Leipsic

X, No. 6, pp. 281-324

127 Chemical Means for Keeping Drawn Breast Milk. (Ueber Konservierung von Frauenmilch durch Perhydrol.) W. Knape.
128 Fermentation of Flour and Oatmeal. (Weitere Untersuchungen über die Gärung von Weizen- und Hafermehl.) M. Klotz.
129 A Motor Neurosis Probably Responsible for Rumination in Infants. (Zur Pathogenese der Rumination im Säuglingsalter.) F. Lust.

Münchener medizinische Wochenschrift

September 26, LVIII, No. 39, pp. 2041-2096

130 Treatment of Myoma. (Myombehandlung.) E. Opitz.
131 Prevention and Treatment of Postoperative Peritonitis. (Verhütung und Behandlung der postoperativen Bauchfellentzündung.) E. Holzbach.
132 *Babinski's Sign Preceding Uremia. (Die diagnostische Bedeutung des Babinskischen Phänomens im präurämischen Zustand.) H. Curschmann.
133 Pigs and Rats as Hosts of Trichina. (Rolle von Schwein und Ratte als Trichinenwirte.) C. Stäubli.
134 Roentoscopy of Peristalsis of Large Intestine. (Zur genaueren Kenntnis der grossen Kolonbewegungen.) G. Schwarz. (Dickdarmperistaltik im Röntgenbilde.) L. Fischl and F. Porges.
135 Transient Glycosuria with Phlegmon. (Vorübergehende Glykosurien bei phlegmonösen Erkrankungen.) G. Becker.
136 Experimental Kala-Azar. (Histologische Veränderungen und parasitärer Befund bei einem an Infektion durch Leishmania-Donovani verendeten Meerschweinchen.) G. Franchini.
137 Case of Idiosyncrasy to Ten Substances. V. E. Mertens.
138 Sulphur as Antidote for Mercurial Poisoning. (Ueber therapeutische Versuche bei Sublimatvergiftung.) C. Bruck.

132. **Diagnostic Importance of the Babinski Sign with Impending Uremia.**—Curschmann called attention some years ago to the great importance, both for diagnosis and prognosis, of modifications in the reflexes as a sign of the morbid condition preceding the uremia syndrome. The various reflexes may be exaggerated or abolished, but he has invariably found the Babinski sign permanently positive from the start, even in cases with loss of all the other tendon reflexes. Little attention has been paid to his statements in regard to the importance of this sign of impending uremia and he here reaffirms them anew and relates a number of typical examples. The first patient was a boy of 10 with acute nephritis but unimpaired consciousness, the tendon reflexes abnormally weak, the abdominal wall reflex abolished, but the Babinski sign phenomenon was pronounced on both sides, and Curschmann, solely from this fact, assumed impending uremia and began prophylactic treatment, venesection, saline infusion and heart tonics. Sixteen or eighteen hours later the uremia made its presence known by convulsions, but the next day improvement was evident and the boy recovered, the Babinski sign subsiding as the convulsions ceased. The contrast between the behavior of this sign and of the other reflexes is particularly characteristic of impending uremia; in some cases the other reflexes may be exaggerated during the uremic phenomena but the Babinski sign warns of danger hours before. He has witnessed in some cases exaggeration of the tendon reflexes during suburemic phases of chronic nephritis. This characteristic behavior of the Babinski is liable to occur with all forms of nephritis, except that he found the forms tending to edema more inclined to exaggeration of the reflexes than the nephritis without this tendency. In conclusion Curschmann discusses the mechanism of and theory for this behavior of the Babinski sign as the purest expression of the loss of cerebral inhibition.

Virchows Archiv, Berlin

CCV, No. 2, pp. 161-320

139 Blastoma in Mice. M. Friedmann.
140 Neoplasms Induced by Injections of Rottenstone. (Künstlich hervorgerufene Neoplasmen nach Kieselgur-Injektionen.) J. I. Schirokogoroff.
141 Goiter in Silesia. (Ueber den Schlesischen Kropf.) C. Davidsohn.
142 Postbranchial Body and Branchial Passages in Man. (Zur Kenntnis des postbranchialen Körpers und der branchialen Kanälchen des Menschen.) S. Getzowa.
143 Closure of the Ductus Venosus and Anatomy of the Portal Vein. (Verschluss des Ductus venosus Arantii nebst Bemerkungen über die Anatomie der Pfortader.) E. Richter.
144 Pathologic-Anatomic Changes in Certain Organs After Poisoning with Various Chemotherapeutic Substances. N. Andrewes.
145 Passage of Feces Past or Around Old Retained Feces. (Mechanismus der Kotpassage bei Kotretention auf Grund einschlägiger Obduktionsbefunde.) A. Brosch.
146 Comparative Research on the Indophenol-Oxydase Reaction in Salivary and Lacrimal Glands in Mammals. R. Spanjer-Herford.
147 Amyloid Bodies in Interior of Ganglion Cells. (Vorkommen amyloider Körperchen im Innern der Ganglienzellen; zugleich ein Beitrag zum Studium der amyloiden Substanz im Nervensystem.) G. R. Lafora.
148 Physiologic and Irritation Motor Phenomena in Leukocytes. (Physiologische und Reizbewegungserscheinungen an Leukozyten.) B. Ullmann.
149 Contribution to Embryology of Human Kidney. (Polyzystisches Nierenrudiment bei Fehlen des Ureters und Vas deferens, appendikulärer Schwellkörper des Penis und zahlreiche andere Missbildungen bei einem 8 monatlichen Fötus.) G. Rosenow. Concluded in No. 3.

Wiener klinische Wochenschrift, Vienna

September 28, XXIV, No. 39, pp. 1351-1382

150 Uterus Bicornis. (Vorzeitige Dezidunaustossung bei Uterus bicornis nebst Bemerkungen zur Physiologie der Verdopplungen der Gebärmutter und zur Menstruation während der Schwangerschaft.) K. J. Bucura.
151 *Placenta Prævia. (Placenta praevia cervicalis.) R. Hofstätter.
152 *Tuberculin Treatment of Urogenital Tuberculosis. R. Bachrach and F. Necker.
153 Early History of Theory of Internal Secretions. (Théophile de Bordeu—1722-1776—als Vorläufer der Lehre von der inneren Sekretion.) M. Neuburger.

151. **Placenta Prævia.**—When the placenta is inserted in the cervix the lip of the os protrudes, the cervix ballooning, resembling the aspect of an abortion impacted in the cervix, the suggestion of abortion being reenforced by the signs of pregnancy and preceding hemorrhages. Sometimes the cervix is friable. If the external os is open a little, crumbling masses can be palpated above it, which bleed at a touch, in the early stages the condition resembling malignant disease. Hofstätter reports a case in which the diagnosis was correctly made; the patient recovered notwithstanding profuse hemorrhage from the inability of the lower segment of the uterus to contract properly. In future in such a case he would at once remove the uterus by the vagina unless there had been only a slight loss of blood, in which case he would try to master the situation by delivering the child, separating the placenta and applying a firm tampon, ready to do hysterectomy at once in case the hemorrhage persisted. He warns that it is impossible to count on spontaneous separation of the placenta from the site in the cervix.

152. **Tuberculin Treatment of Urogenital Tuberculosis.**—In this communication from Zuckerkandl's surgical service the experiences with twelve patients with tuberculosis of the kidneys given tuberculin treatment are reviewed, the conclusions being that operative cases do not require tuberculin treatment unless the tuberculosis involves other organs besides the kidney; in this case tuberculin treatment is advisable. In the rare cases in which the tuberculosis is detected in its early stages by discovery of tubercle bacilli in the urine without essential suppuration or impairment of kidney functioning, tuberculin treatment may give fine results. The experiences related do not show that the focus is liable to heal under tuberculin treatment, but the general health improves and the patients gain in weight. The tuberculin treatment should never be carried to a point to induce reaction. In the inoperable cases it may be applied as a last resort.

Zeitschrift für klinische Medizin, Berlin

LXXIII, Nos. 3-4, pp. 169-385. Last indexed Oct. 14, p. 1332

154 Râles at the Apices. (Rasselgeräusche über den Lungenspitzen.) Külbs.
155 Resistance to Poisons of Known Chemical Constitution. (Resistenz gegenüber Giften bekannter chemischer Konstitution.) P. Fleischmann.
156 Urobilinuria in Croupous Pneumonia. (Bedeutung der Urobilinurie für Diagnose und Prognose krupösen Pneumonie.) W. Hildebrandt.
157 Registration of Blood-Pressure in Arhythmia. (Graphische Blutdruckbestimmungen bei unregelmässiger Herzwirkung.) R. Wybauw.
158 Excretion of Urine and Salt in Diabetes Insipidus. J. Forschbach and Weber.
159 Comparison of Phonoscope Heart Findings with Electrocardiograms. (Registrierung von Herztönen und Herzgeräuschen mittels des Phonoskops und ihre Beziehungen zum Elektrokardiogramm.) O. Weiss and G. Joachim.
160 Determination of Viscosity of Blood. (Weiteres zur Kritik der Viskosimetrie.) H. Determann.
161 Roentotherapy of Tumors in Mediastinum. (Zur Kenntnis der Mediastinaltumoren und ihrer Behandlung mit Röntgenstrahlen.) E. Steinitz and G. Joerdens.
162 Physical-Chemical Changes in the Blood After Paracentesis, Thoracocentesis, Venesection and Subcutaneous Infusion. (Beitrag zur Dynamik der Transsudate.) A. Barlocci. (Physikalisch-chemische Veränderungen des Blutes nach Aderlass und subkutaner Infusion.) C. Oliva.
163 Radium Emanations in the Blood Under Treatment. (Ueber den Gehalt von Radium-Emanation im Blut des Lebenden bei den verschiedenen Anwendungsformen zu therapeutischen Zwecken.) F. Gudzent.
164 "Large Lymphocyte" Leukemia. (Zur Lehre von der grosslymphozytären Leukämie.) K. Thomas.
165 Coincident Diabetes Insipidus and Mellitus. (Fall von gleichzeitige Diabetes insipidus und Diabetes mellitus.) K. A. Heiberg.
166 Dissociation in Liver Functioning. (Zur funktionellen Leberdiagnostik. II.) F. Falk and P. Saxl.
167 Consumption of Oxygen in the Lungs. (Der intrapulmonale Sauerstoffverbrauch des Menschen.) A. Plötter.
168 *Influence of Injections of Gelatin on Kidney Disease. (Zur Frage des Einflusses der subkutanen Gelatineinjektionen bei Nierenerkrankungen.) J. B. Studzinski.

168. **Injections of Gelatin in Kidney Disease.**—Studzinski reports his experiences and analysis of the findings in fourteen cases of kidney disease and in two healthy persons with sound kidneys, all given subcutaneous injections of gelatin in the hope of influencing a hemorrhagic tendency. He did not find any modification of the amount or specific gravity of the urine in any case with the ordinary technic. With chronic interstitial or parenchymatous nephritis without parenchymatous hemorrhages, the injections did not seem to do any special harm as only in one case did they transiently increase the amount of albumin and formed elements in the urine. When the kidney disease was accompanied by a tendency to parenchymatous hemorrhage in the kidney, the injections not only failed to arrest the hemorrhages but dis-

tinctly aggravated this local hemorrhagic tendency. Internal administration of the gelatin, on the other hand, is free from danger and may be of some use without causing any untoward by-effects. The case of uremia reported by Bauermeister in which fatal symptoms of uremia followed the internal administration of gelatin, is probably explainable by the preexistence of the uremia. This patient was given the gelatin for uterine hemorrhage and epistaxis, but the treatment had been preceded by evidence of chronic parenchymatous nephritis inducing uremic disturbances.

Zentralblatt für Gynäkologie, Leipsic

September 30, XXXV, No. 39, pp. 1361-1392

169 Pituitary Extract as Preliminary to Cesarean Section and to Promote Labor Contractions. (Pituitrin als Vorbereitung zum Kaiserschnitt und als Mittel gegen Wehenschwäche.) P. Kroemer.

170 Total Amount of Blood During Pregnancy and Puerperium. (Untersuchungen über die Gesamtblutmenge in der Gravidität und im Wochenbett.) L. Zuntz.

171 *Spontaneous Puerperal Infection. W. Poten.

171. **The Question of Spontaneous Puerperal Infection.**—Poten thinks that this question can be decided only by comparison of long series of parturient women with and without internal examination. In the last three years the vagina was left untouched in about half of the 3,171 maternity cases in his service, and yet two of these women succumbed to septic fever during the puerperium. To deny the possibility of spontaneous infection is to shut one's eyes to facts, he asserts.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 19, XXXII, No. 113, pp. 1195-1202

172 Streptobacillus Isolated from Moribund Pellagrins. (Su di un reperto batteriologico positivo in casi gravissimi di pellagra.) N. Ramella.

September 21, No. 114, pp. 1203-1210

173 Mechanism of Action of Glycosuria-Checking System. (Contributo sperimentale sul meccanismo di azione dei sistemi antiglicosurici.) P. Paolucci.

September 24, No. 115, pp. 1211-1226

174 The Integral Interrelations Between the Organic Fluids, and the Theory of Hormones. (L'integrazione umorale dell'organismo e la teoria degli ormoni.) F. Bottazzi.

175 Fracture of the Skull: Three Cases. (Tre craniectomie per frattura complicata della volta cranica.) A. Franchini.

September 26, No. 116, pp. 1227-1234

176 Diagnostic Comparative Determination of Starch Digesting Ferment in Saliva, Stool and Urine. (Evoluzione comparata dell'amilasi nella fecce e nell'urina degli infermi.) A. Sampogna.

Policlinico, Rome

September 24, XVIII, No. 39, pp. 1225-1256

177 Precipitin Reaction in Diagnosis of Tuberculosis. (La precipitoreazione nella diagnosi della tuberculosi.) F. Fasani-Volarelli.

178 Intoxication from Quinin Without Jaundice or Hematuria. (Alcuni casi di intossicazione da chinino senza itterizia ed ematuria.) S. Spampinato.

September, Medical Section, No. 9, pp. 381-428

179 Research on the Heart Sounds. (Ancora intorno alla genesi del primo tono o suono del cuore.) D. Salvatore.

180 Research on the Cardiovascular Murmurs. (Sul meccanismo dei rumori di soffio cardio-vascolari e sulla loro propagazione.) C. Pezzi.

181 *The Wassermann Reaction in Foundlings. (La reazione di Wassermann sugli esposti.) M. Flamini.

182 Roentographic Diagnosis of Gastric Cancer. F. Perussia.

September, Surgical Section, No. 9, pp. 385-432

183 Fracture of the Second Cervical Vertebra Without Injury of the Spinal Cord. (Frattura dell'epistrofeo, senza lesioni nervose, e frattura dello sterno per caduta da cavallo.) R. Dalla Vedova.

184 The Elastic Network in the Walls of Varicose Veins. (Il sistema delle "gitterfasern" nella parete delle vene varicose.) G. Razzaboni. Commenced in No. 8.

185 Phenomena After Removal of Thyroid, Parathyroids and Testicles or Ovaries. (Tiro-paratiroidectomia e castrazione.) F. Purpura.

186 *The Cobra Reaction with Surgical Lesions. (La cobrareazione di Calmette in talune affezioni chirurgiche.) G. Aperlo.

187 Antitoxic Power of Lymphatic Glands. (Sul potere antitossico delle giandole linfatiche.) F. Lofaro.

181. **The Wassermann Reaction in Foundlings.**—Flamini obtained a positive reaction in thirteen of 170 foundlings at the Rome asylum. This proportion of 7.5 per cent. is about the same as that obtained at the Milan asylum. It is much lower than the proportion of positive reactions in the blood from the umbilical cord obtained in maternities. He thinks that this testifies to the presence in the blood of substances from the maternal blood which give the Wassermann reaction.

186. **The Cobra Reaction in Surgical Affections.**—Aperlo has been applying Calmette's cobra venom test in fifteen cases of surgical tuberculosis, three of sarcoma, four of carcinoma and eight with various other surgical affections. The reaction was positive in all the sarcoma cases and negative in the carcinoma. In the tuberculous cases the cobra reaction alone was positive in three, the cutaneous reaction alone in four, and both were positive in five other cases. He reports these findings without drawing any general conclusions from them.

Riforma Medica, Naples

September 25, XXVII, No. 39, pp. 1065-1092

188 Staining Technic for Differentiating Cancer. (La dimostrazione delle fibrille reticolari con il metodo Bielschowsky per la diagnosi differenziale tra sarcoma ed epitelioma.) C. Licini.

189 Action of Pituitary Extract and Epinephrin on the Fatigue Curve. (Azione di alcuni estratti di glandole a secrezione interna sulla curva della fatica.) A. Trerotoli.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXII, No. 10, pp. 1003-1056, and Supplement

190 *Obstacles to Marriage from the Medical Standpoint. (Om egteskapshindringer fra et medicinsk synspunkt.) Holmboe.

191 Cholecystitis with Pure Cultures of the Micrococcus Melitensis. (Cholecystit med renkultur av Micrococcus melitensis.) P. Bull and H. M. Gram.

192 *The Wassermann Reaction and Its Clinical Importance. (Den Wassermannske reaktion og dens kliniske betydning.) R. Krefting.

190. **Obstacles to Marriage from the Medical Standpoint.**—Holmboe was commissioned by the Norwegian government to report on this subject, and he here presents the results of his study. The questions involved were principally determination of the lowest age-limit for candidates for matrimony, mental or physical disease or consanguinity as an obstacle to marriage, and whether persons known to the authorities to be suffering from contagious or heritable diseases should be allowed to marry, and whether medical examination of candidates for matrimony should be made compulsory. He states that according to the statistics at hand, the girls of the wage-earning classes in Norway as a rule begin to menstruate late, one-fourth not until after the seventeenth year, consequently he thinks that the lower limit for matrimony should not be under 18. It is 16 according to the present legislation. His conclusions are unfavorable to compulsory medical examination of candidates as liable to prove illusory for reasons which he enumerates.

192. **The Wassermann Reaction.**—Krefting's monograph is published as a separate pamphlet of 152 pages and discusses the Wassermann reaction from different points of view, including the historical and life insurance standpoints. He has been studying the reaction for nearly three years and has made 2,500 Wassermann tests. In 322 cases of latent syphilis the reaction was negative in 75 per cent. and he is convinced that these negative patients are more liable to be spared further manifestations of their syphilis than those giving a positive reaction. He has examined a number of these negative patients repeatedly during the last two and a half years and has never obtained a positive response, and this persisting negative reaction is a favorable sign. A positive reaction must be accepted, he thinks, as a sign of active syphilis, no matter what the stage of the disease in question. One of his patients with syphilis of ten years' standing and who had had the disease apparently in a very mild form, gave a positive reaction when tested a year ago after a long period of freedom from manifestations, and yet a month after the test had given positive findings a gumma developed on the thigh. In another case a man of 45 with infection of eighteen years' standing applied for relief from incipient cataract and the Wassermann test was positive. A month or so later a gumma was discovered on the shoulder. Another patient of the same age, with a history of infection seventeen years before but so slight that some physicians doubted the correctness of the diagnosis, gave a positive reaction when tested two years ago and a year later had to be taken to an asylum with acute paralysis, fatal in three months. Some of the patients giving a positive reaction, but apparently free from manifestations of the disease complain a little of their hearts so that there is probably some aortitis or aneurysm develop-

ing although no physical signs of such can be detected. In regard to life insurance, Krefting states that he has applied the test a few times on behalf of insurance companies but is not aware that they acted on the outcome of the test; he thinks, however, that the companies will in time have to take the Wassermann reaction into account in dubious cases, and as it is in the interest of the companies, they will have to assume the expense. An interesting chapter relates Krefting's experience with the Wassermann findings under mercurial and salvarsan treatment. It seems to indicate that salvarsan has a more regular and a more pronounced action on the syphilis than any other treatment. He even reports a case of apparent reinfection after the patient had been presumably cured under salvarsan of his primary syphilis. He applied for treatment January 19, with a primary sore swarming with spirochetes, the Wassermann negative. Three intravenous injections of salvarsan were given between January 21 and March 10, the Wassermann reaction constantly negative, and no manifestations of the syphilis were observed beyond the primary sore. June 3 the young man returned with two primary sores both swarming with spirochetes and the Wassermann reaction was positive; infection had occurred six weeks before. The syphilis this time ran a somewhat livelier course with roseola and some glandular involvement. Krefting remarks that this is the most carefully investigated case of presumable reinfection known to him, the primary sores each time having been diagnosed as such by other physicians. Krefting never obtained a positive reaction in primary syphilis until seven or eight weeks after infection. He obtained a positive reaction in every one of the 317 patients with syphilis in the secondary stage, including eighty-two women, and in eighty-four of eighty-seven syphilitics in the tertiary stage, the interval since infection ranging from two to thirty years. Among his 322 cases of syphilis free from symptoms, three to forty years after infection, the reaction was positive in 27 per cent.; among the 233 negative cases the patients at some time had had tertiary manifestations.

Ugeskrift for Læger, Copenhagen

September 28, LXXIII, No. 39, pp. 1493-1550

193 Hygienic Necessity for Pure Food Legislation. (Hygiejniske Krav til Kontrollen med Levnedsmidler.) A. Erlandsen.

Upsala Läkareförenings Förhandlingar

N. S. XVI, No. 7, pp. 481-590. Last indexed Sept. 9, p. 836

194 Experiences with Orthopedic Exercises and Surgery, 1910. Från Dr. Haglunds gymnastisk-ortopedisk-kirurgiska privatanstalt i Stockholm.) P. Haglund.

195 Alkaptonuria and Ochronosis. (Ett och annat om alkaptonuri och okronos.) C. T. Mörner.

196 Inhibition of Action of Invertin. (Om hämning af invertinets verkan.) A. Eriksson.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

LIPPINCOTT'S NEW MEDICAL DICTIONARY. A Vocabulary of the Terms Used in Medicine, Dentistry, Veterinary Medicine, and the Allied Sciences with Their Pronunciation, Etymology and Significance, Including Much Collateral Information of a Descriptive and Encyclopedic Character. By Henry W. Cattell, A.M. (Laf.), M.D. (U. of P.), Editor of International Clinics. Second Edition. Flexible Leather. Price, $5 net. Pp. 1108, with illustrations. Philadelphia: J. B. Lippincott Co., 1911.

THE DISEASES OF INFANCY AND CHILDHOOD. For the Use of Students and Practitioners of Medicine. By L. Emmett Holt, M.D., Sc.D., LL.D., Professor of Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York, assisted by John Howland, A.B., M. D., Professor of Diseases of Children in Washington University, St. Louis. Sixth Edition. Cloth. Price, $6 net. Pp. 1112, with 240 illustrations. New York: D. Appleton & Co., 1911.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. By Olof Hammarsten, Emeritus Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized Translation from the Author's Enlarged and Revised Seventh German Edition by John A. Mandel, Sc.D., Professor of Chemistry in the New York University and Bellevue Hospital Medical College. Sixth Edition. Cloth. Price, $4 net. Pp. 964. New York: John Wiley & Sons, 1911.

CHEMICAL AND MICROSCOPICAL DIAGNOSIS. By Francis Carter Wood, M.D., Professor of Clinical Pathology, College of Physicians and Surgeons, Columbia University, New York. Third Edition. Cloth. Price, $5 net. Pp. 791, with 194 illustrations. New York: D. Appleton & Co., 1911.

A MANUAL OF PATHOLOGY. By Guthrie McConnell, M.D., Professor of Pathology and Bacteriology, Temple University, Medical Department, Philadelphia. Second Edition. Flexible Leather. Price, $2.50 net. Pp. 531, with illustrations. Philadelphia: W. B. Saunders Co., 1911.

DISEASES OF THE EAR, NOSE AND THROAT, MEDICAL AND SURGICAL. By Wendell Christopher Phillips, M.D., Professor of Otology, New York Post-Graduate Medical School and Hospital. Cloth. Price, $6 net. Pp. 847, with 345 illustrations. Philadelphia: F. A. Davis Co., 1911.

TRANSACTIONS OF THE FOURTH ANNUAL MEETING OF THE MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY SURGICAL ASSOCIATION. Held at St. Paul, Minn., Nov. 16 and 17, 1910. Paper. Pp. 173. John H. Rishmiller, Secretary, Minneapolis, Minn.

APPLIED ANATOMY AND ORAL SURGERY. For Dental Students. By Robert H. Ivy, M.D., D.D.S., Assistant Oral Surgeon at the Philadelphia General Hospital. Cloth. Price, $1.50 net. Pp. 280, with illustrations. Philadelphia: W. B. Saunders Co., 1911.

SIXTH ANNUAL REPORT OF THE ASSOCIATED COMMITTEES OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE PREVENTION AND CONTROL OF TUBERCULOSIS. September, 1911. Paper. Pp. 63. John B. Hawes, 2d, M.D., Secretary, 3 Joy Street, Boston.

FOOD VALUES. Practical Tables for Use in Private Practice and Public Institutions. By Edwin A. Locke, A.M., M.D., Instructor in Medicine, Harvard Medical School, Boston. Cloth. Price, $1.25 net. Pp. 110. New York: D. Appleton & Co., 1911.

BIBLIOGRAPHIE DER NEUROLOGIE UND PSYCHIATRIE FÜR DAS JAHR 1910. Von der Redaktion der Zeitschrift für die gesamte Neurologie und Psychiatrie. Paper. Price, 10 marks. Pp. 202. Berlin: Julius Springer, 1911.

REPORT OF THE VETERINARY DIRECTOR GENERAL AND LIVE STOCK COMMISSIONER, J. G. RUTHERFORD. For the Year Ending March 31, 1910. Paper. Price, 10 cents. Pp. 128. Ottawa: C. H. Parmelee, 1911.

ANNUAL REPORT OF THE SCHOOL MEDICAL OFFICER, ROBERT A. LYSTER, M.D., Ch.B., B.Sc., D.P.H. For the Year 1910. Paper. Pp. 74. Public Health Department, The Castle, Winchester.

EIGHTH ANNUAL REPORT OF THE BARLOW SANATORIUM (INCORPORATED). Chavez Ravine, Los Angeles, Cal. Paper. Pp. 48. Dr. W. Jarvis Barlow, Secretary, Los Angeles, Cal.

MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY. Volume XXII. Paper. Pp. 408. W. L. Burrage, Secretary, 282 Newbury Street, Boston.

New Patents

Patents of Interest to Physicians

1,000,481. Truss, William H. Allen, Imperial, Cal.
1,000,706. Respirator, Dana D. Barnum, Worcester, Mass.
1,000,732. Making nitric oxid, Friedrich Haussar, Kaiserslautern, Germany.
1,000,423. Solid oil containing medicine, Otto B. May, New York, N. Y.
1,000,433. Manufacture of cream of tartar, John B. Mosnowski, New York, N. Y.
1,000,750. Wrapping for hydrotherapeutic purposes, Maria P. P. B. Xerii, Florence, Italy.
1,000,852. Solid perfume mixture containing artificial musk, Alexander Stapler, Charlottenburg, Germany.
999,950. Apparatus for use in administering anesthetics, Albert Berthelot and P. Rosenthal, Paris, France.
999,758. Operating mechanism, Louis E. Dietz, Cincinnati, O.
1,000,332. Pocket filter, Henry H. Dyer, Somerville, Mass.
1,000,091. Vacuum apparatus for hyperemic treatments, Robert A. C. Holz, Cleveland, O.
1,000,335. Thermo-electric fountain syringe, Norman E. Houser, St. Louis, Mo.
1,000,178. Medical spoon, William F. Kahl, Detroit, Mich.
999,855. Hospital appliance, Lincoln P. Parkhurst, Grand Rapids, Mich.
1,000,294. Electromagnetic vibrator for local application to the person, Augustus Rosenberg, London, England.
1,000,298. Preparation for slowly liberating oxygen, Leopold Sarason, Hirschgarten, near Berlin, Germany.
1,000,214. Preparing extractive compounds of the suprarenal gland, Charles E. Vanderkleed, Collingswood, N. J.
1,000,138. Obtaining bicarbonate of soda, Noah Wrinkle, and R. G. Paddock, San Francisco, Cal.
999,294. Sterilizing apparatus, Gustav Bengs, Fort Wayne, Ind.
999,484. Artificial arm and hand, William T. Carnes, Kansas City, Mo.
999,362. Case for vials, etc., Everett B. Chapman, Marlboro, Mass.
999,551. Manufacture of oxalic acid and other oxygenated carbon products, Auguste Deiss, Marseilles, France.
999,451. Inhaling apparatus, Frederik A. Holleman, The Hague, Netherlands.
999,225. Vibroscope, Charles F. Hopewell, Newton, Mass.
999,667. Converting pinene into camphene, Louis Montaland, Villetaneuse, France.
999,289. Medicinal cup, Morris Zuckerman, New York, N. Y.
999,663. Obtaining nitrogen, Charles E. Acker, Ossining, N. Y.
999,083. Soluble casein, Carl A. Baechler, Zurich, Switzerland.
999,084. Soluble casein, Carl A. Baechler, Zurich, Switzerland.
999,049. Ankle support and protector, Henry J. Collis, Taunton, Mass.
998,618. Stereoscope plate changer, Edwin W. Kelly, Philadelphia, Pa.
998,850. Automatic stereoscopic radiography, Edwin W. Kelly, Philadelphia, Pa.
998,977. Water bag, James A. Murray, New Haven, Conn.
998,996. Attachment for invalid beds, Josephine M. Swenson and T. S. Olsen, New York, N. Y.
999,078. Cooler for soda fountains, Will B. Wood and B. L. Warner, St. Louis, Mo.